QUARTERLY REVIEW of PEDIATRICS

Vol. 5 No. 2 May 1950

Good START on AVOIDING Infant ALLERGIES...

THIS ONE-GRAIN CEREAL

The growing demand for a one-grain cereal suitable to initial infant feedings stimulated the development of Gerber's Barley Cereal. Always, when the medical profession expresses a new need in the area of infant nutrition, we at Gerber's make every attempt to satisfy it

Helping you give babies a better start in life is our business . . . our only business. So in addition to its non-allergy advantages, Gerber's Barley Cereal contains added Iron, Calcium and important B vitamins.

Samples: Barley Cereal, Strained Oatmeal, Cereal Food plus Baby Food Analysis Folder. Write on your letterhead to Dept. RP5-0, Fremont, Mich.

Babies are our business . . . our only business!

Gerber's
BABY FOODS

Growing in favor with physicians

Pabena* is *oatmeal* . . . and has the rich, full oatmeal flavor.

Like PABLUM,* PABENA is enriched with important vitamins and minerals and is thoroughly cooked and dried.

In addition, PABENA is valuable for infants and children who are sensitive to wheat. It is an ideal first solid food.

PABENA and PABLUM provide variety of cereal flavor that is welcomed by both mother and child.

PABENA and PABLUM, like all Mead's products, are not advertised in lay publications.

*T.M. Reg. U. S. Pat. Off.

MEAD JOHNSON & CO.
EVANSVILLE 21, IND., U. S. A.

When training starts...

LITTLE TOIDEY

Whether you recommend baby be "conditioned" through the pleasant Little Toidey, before muscle control, or

you prefer the start be made after the toddler "knows what it's all about"

Toidey Habit Training Units can be helpful.

The recently developed Toddler's Toidey is particularly important for the child who starts second half of second year. It is also helpful if there has been a break in training and a new start has to be made. This Toddler's Toidey is all aluminum except that it has four suction cups on the underside of the seat so that this seat itself can be used on the toilet without the legs or the pan. This could be used as an emergency when traveling or later, when the child is two or three years old, in combination with Toidey Two Steps.

The Toddler's Toidey is also a Base for Little Toidey. The top is aluminum formed into a comfortable seat and enameled.

SPECIAL COURTESY DISCOUNT TO PHYSICIANS

The complete Toidey Habit Training Unit consists of Little Toidey (in plastic or wood), Toidey Base, Toideyette (deflector) and Specimen Collector. The complete unit or individual items are now available to members of the medical profession for their home or office use at a special courtesy discount of 20% from regular retail prices. Courtesy discount only on orders mailed directly to us.

THE TOIDEY COMPANY

Gertrude A. Muller, Inc.

FORT WAYNE, INDIANA, U. S. A.

Quarterly Review of PEDIATRICS

Vol. 5 No. 2 May 1950

Published quarterly in January, April, July and October. The annual cumulative subject and author index is bound in the October issue.

Subscription rate: $11.00 per year; $28.00 for 3 years.

WASHINGTON INSTITUTE OF MEDICINE
1523 L St. N.W., Washington 5, D. C.

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FOREWORD

The prime function of the QUARTERLY REVIEW OF PEDIATRICS is to make a survey, with a critical eye, of the important new contributions in every branch of pediatrics. Original reports are abstracted by pediatricians familiar with the subjects under consideration. The Editors and Editorial Board check over all abstracts and add interpretative or critical comments whenever necessary. The "Bookshelf" department reports informatively on new books the pediatrician should know about. Thus, within the covers of a single journal, there is brought together a concise chronicle of pediatric progress, well organized, reliable and complete. By exploring the entire expanse of medical literature the QUARTERLY REVIEW OF PEDIATRICS keeps its readers abreast of the most recent progress in all of pediatrics. A subscription to THE QUARTERLY REVIEW OF PEDIATRICS represents a continuous seminar on advances in pediatrics.

For convenience of reference the abstracts are grouped as follows:

1. Allergy
2. Anomalies, Genetics
3. Blood, Hemopoietic System
4. Cardiovascular System
5. Chemotherapy, Drugs, Poisons, Physical Agents
6. Clinical Pathology
7. Endocrine System
8. Eye, Ear, Nose and Throat
9. Gastrointestinal System
10. Genitourinary System
11. Growth, Puberty, Adolescence
12. History, Biography, Antiquities
13. Infectious Diseases, Acute
14. Infectious Diseases, Chronic
15. Liver, Kidneys, Spleen
16. Metabolic and Systemic Disorders
17. Milk; Infant and Child Feeding
18. Miscellaneous
19. Musculoskeletal System
20. Nervous System
21. Newborn Period, Prematurity
22. Nutrition
23. Parasitic Diseases
24. Pathology, Anatomy, Bacteriology
25. Physiology, Biochemistry
26. Psychology, Psychiatry
27. Public Health, Epidemiology
28. Respiratory System
29. Skin, Teeth, Hair
30. Social, Economic and Organizational Problems
31. Surgery, Anesthesia
32. Tumors

The Pediatric Bookshelf

New Books, Pamphlets

Announcements

Issues of the QUARTERLY REVIEW OF PEDIATRICS appear in February, May, August, and November. A cumulative index for each volume is included in the November number. Suggestions, correspondence and editorial communications should be addressed to Irving J. Wolman, M.D., *Editor*, The Children's Hospital, 1740 Bainbridge Street, Philadelphia 46, Pa. Subscriptions should be mailed to the Washington Institute of Medicine, 1523 L Street, N.W., Washington 5, D. C. Annual Subscription: $11.00. Three years: $28.00.

Leading investigators in over
80 clinical research centers
in the United States and abroad
participated in the initial study
and evaluation of

Terra

indicated in:

Affords an antibiotic spectrum
affecting organisms in
the bacterial, viral, rickettsial
and protozoan groups.

well tolerated

mycin

acute pneumococcal infections, including lobar pneumonia, bacteremia; acute streptococcal infections, including erysipelas, septic sore throat, tonsillitis; acute staphylococcal infections; bacillary infections, including anthrax; urinary tract infections due to E. coli, A. aerogenes, Staphylococcus albus or aureus and other Terramycin-sensitive organisms; brucellosis (abortus, melitensis, suis); hemophilus infections, including whooping cough (exclusive of meningitis); acute gonococcal infections; syphilis; lymphogranuloma venereum; granuloma inguinale; primary atypical pneumonia; herpes zoster; typhus (scrub, epidemic, murine); rickettsialpox; amebiasis (Endamoeba histolytica).

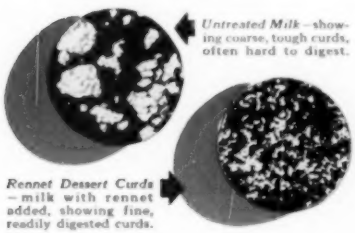
R E N N E T - C U S T A R D S . . .

F O R A N Y D I E T A T A N Y A G E

Younger Infants

Rennet-custards, made from uncooked milk with "Junket" Brand Rennet Powder or Tablets, are among the first desserts advised by pediatricians for young infants. These delicious, eggless milk desserts, more easily digested than milk itself, help to cater to the younger infant's developing preference for solid foods—thus permitting early spoon feeding of a pleasing new texture in a desirable variety of flavors and colors. Quickly prepared, and in no way changing the nutritive values of uncooked milk, rennet-custards afford a welcome diversity to, and heightened interest in, this all-important food for the younger infant. Mothers will appreciate your specific recommendation on your Diet Lists.

"JUNKET" BRAND FOODS
DIVISION
Chr. Hansen's Laboratory, Inc.
LITTLE FALLS, N. Y.



Untreated Milk—showing coarse, tough curds, often hard to digest.

Rennet Dessert Curds—milk with rennet added, showing fine, readily digested curds.

"Junket" Rennet Powder – sweetened, six flavors.
"Junket" Rennet Tablets – unsweetened, unflavored (particularly for very young infants and diabetics)

D-550

"JUNKET" is the trade-mark of Chr. Hansen's Laboratory, Inc. for its rennet and other food products.

Eskadiamer combines the 2 safest sulfonamides in 1 delicious fluid preparation

Leading clinicians have attested the greater safety of the sulfonamides in mixtures. Now, Lehr finds that "sulfadiazine and sulfamerazine qualify for first and second place, respectively, as mixture components."

Federation Proceedings 8:315 (March) 1949

Eskadiamer, therefore, is especially welcome to the physician—not only because it is a sulfonamide mixture, but also because it is a mixture of equal parts *of the two safest sulfonamides in general use:* sulfadiazine and sulfamerazine.

Eskadiamer tastes so good that children—and many adults—much prefer ESKADIAMER to the usual bulky, sulfonamide tablets.

Smith, Kline & French Laboratories, Philadelphia

Eskadiamer

the delicious fluid preparation of sulfamerazine and sulfadiazine

Each 5 cc. (one teaspoonful) of ESKADIAMER contains 0.25 Gm. (3.86 gr.) microcrystalline sulfamerazine and 0.25 Gm. (3.86 gr.) microcrystalline sulfadiazine—the dosage equivalent of the standard 0.5 Gm. (7.7 gr.) sulfonamide tablet.

JUMPING-JACKS®

FLEXIBLE SHOES FOR HARD WEAR

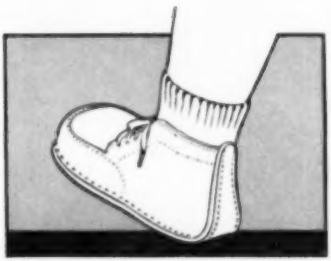
THE SHOE THAT HELPS ELIMINATE

ANKLE WOBBLE

IN YOUNG CHILDREN . . .

THE ORDINARY ROUND HEEL SHOE

The ordinary rounded heel encourages the young foot to rock, placing a strain on developing ankles.



JUMPING-JACKS SQUARED HEEL SHOE

JUMPING-JACKS flat square heel forces shoe to roll straight forward. Foot can't rock from side to side—Helps young ankles grow strong naturally.

FOR ALL CHILDREN 6 MONTHS TO 4 YEARS

TESTED AND COMMENDED BY PARENTS MAGAZINE

Guaranteed by Good Housekeeping

VAISEY-BRISTOL SHOE COMPANY, INC.

ROCHESTER 3, NEW YORK

infant anorexia rapidly disappears

Just five drops daily of White's Multi-Beta Liquid stimulates the infant appetite; weight increase is favorably influenced and greater resistance to infection exhibited—the early infant's vitamin B intake is at a safe range.

Similarly in the adult, White's Multi-Beta Liquid, in teaspoon dosage, helps replenish and maintain adequate vitamin B stores—corrects deficiency-induced anorexia, aids in patient recovery, improves special or restricted dietaries.

EXCELLENT PRESCRIPTION INGREDIENT
Palatable, non-alcoholic and stable, White's Multi-Beta Liquid is ideally suited to prescription use. Compatible with such ingredients as: (1) Tincture Nux Vomica, in equal parts. (2) Elixir Phenobarbital, 1 to 4 parts. (3) White's Mol-Iron Liquid, 1 to 8 parts.

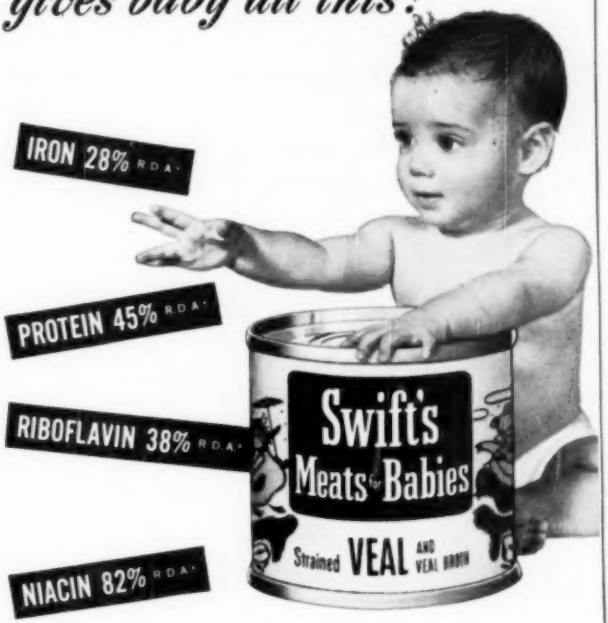
White's **MULTI-BETA LIQUID**

. . . multi-purpose **B complex** source

WHITE LABORATORIES, INC., *Pharmaceutical Manufacturers*, NEWARK 7, N. J.

An average can of

SWIFT'S STRAINED VEAL *gives baby all this!*



Plus! *6% of the thiamine* and 9% of the calories baby requires every day.*

Current Clinical Meat Feeding Studies

REPORT No. 6

EFFECT OF STRAINED MEAT IN THE DIETS OF PREMATURELY BORN BABIES

In this research, the effect of meat on the hemoglobin concentration, erythrocyte count, weight gains, and serum protein values of prematurely born infants is being investigated. Other factors that develop in the course of the study will be analyzed as to their value to infant nutrition.

This study is part of an extensive clinical research program now being conducted through grants-in-aid made by Swift & Company.

Baby's limited capacity demands that foods in his diet be qualitatively and quantitatively high in essential nutrients. Meat is such a food. That's why so many doctors recommend a daily serving of Swift's Meats for Babies early in life.

Excellent Protein Source

All Swift's Meats for Babies offer an excellent source of complete, high-quality proteins, B vitamins and iron. These nutrients are all required by infants in optimum amounts every day.

Six Meats for Variety

To help establish nutritionally sound eating habits, Swift offers a complete variety—in either Strained or Junior form—beef, lamb, pork, veal, liver, heart. All six, 100% meat, are trimmed to reduce fat content to a minimum. All are carefully cooked, ready to serve.

**3½ ounces, approximately 100 gm. per can. All approximate percentage figures above based on Recommended Dietary Allowances of National Research Council for an infant under one year, except figure for phosphorus, which is based on U. S. Food and Drug Minimum Daily Requirement for a one-year-old baby. Note: Protein percentage applies for infant under one year weighing 22 pounds. The above figures will necessarily vary according to natural variances in meat.*

All nutritional statements made in this advertisement are accepted by the Council on Foods and Nutrition of the American Medical Association.

SWIFT... *foremost name in meats*

... *first to develop and clinically test 100% Meats for Babies*

"Our results with the molybdenum-iron complex have been...striking..."

Dieckmann, W. J. and Priddle, H. D.:
Am. J. Obst. & Gynec. 57: 541 (1949)

UNTIL recently Dieckmann has repeatedly reported that true hypochromic anemia of pregnancy did not respond satisfactorily to orally administered iron.[1,2]

Now, however, following his latest investigation—a study of the value of molybdenized ferrous sulfate (Mol-Iron)—he states:

> "We have never had other iron salts so efficacious in pregnant patients. Our results with the molybdenum-iron complex have been . . . striking . . . increases in hemoglobin were . . . dramatic and . . . rapid."[3]

This most recent evaluation of molybdenized ferrous sulfate (Mol-Iron) confirms the findings of all earlier investigators, who found Mol-Iron to be:

> ". . . unusually efficacious . . ."[4]
> ". . . a true example of potentiation of the therapeutic action of iron . . ."[5]
> ". . . hemopoietically more active . . ."[6]

and remarkably well tolerated.[5,7]

White's Mol-iron *Tablets, Liquid*

MOLYBDENIZED FERROUS SULFATE

A highly palatable Liquid; ideal for infants and children. Presents a specially processed, co-precipitated, stable complex of molybdenum oxide 3 mg. (1/20 gr.) and ferrous sulfate 195 mg. (3 gr.) in each teaspoonful (4 cc.). Bottles of 12 fluid ounces; also Tablets—bottles of 100 and 1000.

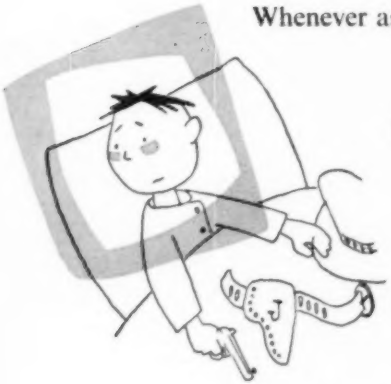
1. Adair, F. L., Dieckmann, W. J., and Grant, K.: Am. J. Obst. & Gynec. *32*:560 (1936).
2. Talso, P. J., and Dieckmann, W. J.: Am. J. Obst. & Gynec. *55*:518 (1948).
3. Dieckmann, W. J., and Priddle, H. D.: Am. J. Obst. & Gynec. *57*:541 (1949).
4. Neary, E. R.: Am. J. Med. Sci. *212*:76 (1946).
5. Healy, J. C.: J. Lancet *66*:218 (1946).
6. Chesley, R. F., and Annitto, J. E.: Bull. Marg. Hague Maternity Hosp. *1*:68 (1948).
7. Kelly, H. T.: Penn. M. J. *51*:999 (1948).

White Laboratories, Inc., Pharmaceutical Manufacturers, Newark 7, N. J.

In Childhood Fevers—

The youngster with an acute febrile condition will be more cooperative if pleasant-tasting Aspergum is selected as the antifebrile agent.

Quickly soluble in the saliva and gastric juice, the acetylsalicylic acid in Aspergum reaches the blood stream rapidly.



Whenever aspirin is indicated, depend on Aspergum for ease of administration. Ethically promoted—not advertised to the public.

Each pleasantly flavored Aspergum tablet contains 3½ grains of acetylsalicylic acid—a dosage form uniquely fitted to childhood requirements.

aspergum

IN RHEUMATIC FEVER THERAPY

A SIGNAL IMPROVEMENT

Salcedrox permits administration of *adequate* amounts of salicylate without complicating gastric intolerance and with reduced systemic toxicity. It also combats and corrects the frequently associated depressed ascorbic acid blood levels. Thus it markedly enhances the therapeutic efficacy of salicylate medication in rheumatic fever, allied rheumatic states, and whenever salicylates are indicated.

Salcedrox combines in a single tablet:

Sodium salicylate ..... 5 gr.
Aluminum hydroxide gel, dried ..... 2 gr.
Calcium ascorbate ..... 1 gr. (equivalent to 50 mg. ascorbic acid)
Calcium carbonate ..... 1 gr.

Available on prescription through your pharmacy.

THE S. E. MASSENGILL COMPANY
Bristol, Tenn.-Va.
NEW YORK · SAN FRANCISCO · KANSAS CITY

SALICYLATE
PLUS ANTACID
PLUS VITAMIN C

Salcedrox
TABLETS

SE-MCO

Only CUTTER DIP-PERT-TET® ALHYDROX* GIVES ALL SIX

1. Active immunization against **DIPHTHERIA**
2. Active immunization against **PERTUSSIS**
3. Active immunization against **TETANUS**
4. Reduced dosage—standardized at **0.5cc.** for basic and "booster" injection.
5. **FEWER REACTIONS** from non-antigenic substances because of improved purification.
6. **ALUMINUM HYDROXIDE** (Alhydrox) adsorption which increases antigenicity and builds durable immunity.

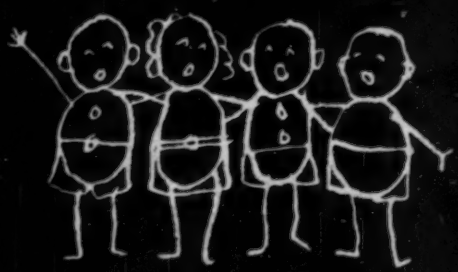
When ordering, specify

DIP-PERT-TET—ALHYDROX-CUTTER

* DIP-PERT-TET—Combined Diphtheria and Tetanus Toxoids and Pertussis Vaccine Adsorbed on Chemical Aluminum Hydroxide (Alhydrox)

CUTTER LABORATORIES • BERKELEY, CALIFORNIA

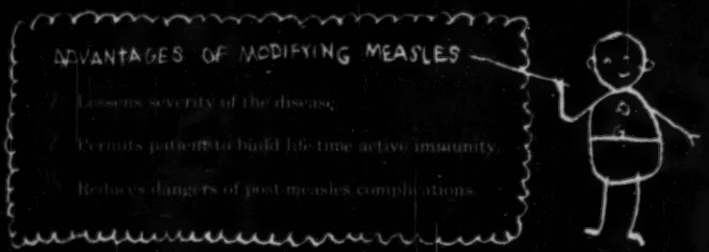
YES, WE HAVE NO REACTIONS*



Immune Serum Globulin · Cutter

is made only from human Venous blood

Look at the highly purified hemologous protein in the Cutter vial. See the hemolysis-free, crystal-clear gamma globulin. Immune Serum Globulin · Cutter is a product of choice for measles modification and prevention.



Most reactions can be avoided by administration according to direction sheet.

Order...Cutter Immune Serum Globulin

the only gamma globulin available from your pharmacist-fractionated entirely from human blood

CUTTER LABORATORIES · BERKELEY CALIFORNIA

Quarterly Review of PEDIATRICS

MAY, 1950

Vol. 5 CONTENTS No. 2

1. Allergy

2. Anomalies, Genetics

3. Blood, Hemopoietic System

4. Cardiovascular System

5. Chemotherapy, Drugs, Poisons, Physical Agents

6. Clinical Pathology

7. Endocrine System

8. Eye, Ear, Nose and Throat

9. Gastrointestinal System

10. Genitourinary System

See Contents for Related Articles

11. Growth, Puberty, Adolescence

12. History, Biography, Antiquities

See Contents for Related Articles

13. Infectious Diseases, Acute

14. Infectious Diseases, Chronic

15. Liver, Kidneys, Spleen

16. Metabolic and Systemic Disorders

17. Milk; Infant and Child Feeding

See Contents for Related Articles

18. Miscellaneous

19. Musculoskeletal System

20. Nervous System

21. Newborn Period, Prematurity

22. Nutrition

23. Parasitic Diseases

24. Pathology, Anatomy, Bacteriology

25. Physiology, Biochemistry

26. Psychology, Psychiatry

27. Public Health, Epidemiology

28. Respiratory System

29. Skin, Teeth, Hair

30. Social, Economic, and Organizational Problems

See Contents for Related Articles

31. Surgery, Anesthesia

32. Tumors

The Pediatric Bookshelf

Announcements

When Rapid Growth Calls For HIGH IRON and THIAMINE Remember RALSTON!

Instant Ralston—enriched whole wheat cereal—is a *rich* source of iron and thiamine. A single 1-ounce serving supplies the following percentages of the minimum daily requirement:

	1-6 years	6-12 years	adults
IRON	113%	84.9%	84.9%
THIAMINE	84%	56%	42%

Plus 3.5 Gm. PROTEIN

Instant Ralston supplies riboflavin and niacin, too . . . in taste-appealing, readily digested form.

Cooks in 10 seconds

FREE!

Pediatric Feeding Directions: birth to 3 mos., 3-6 mos., 6-10 mos., over 10 mos.

Color Books: to give your young patients. Write—

RALSTON PURINA COMPANY
LQ-8 Checkerboard Square,
St. Louis 2, Mo.

An Important Advance

IN THE PREVENTION AND TREATMENT OF

IMPETIGO

EXCORIATED BUTTOCKS

MILIARIA

DIAPER RASH

—New Formula Johnson's Baby Lotion

For more than 3 years, the Medical Research Laboratory of Johnson & Johnson in co-operation with several leading universities, has been engaged in fundamental research leading to the development of a physiologically acceptable preparation for use on infant's skin. These efforts have culminated in the release of the new Johnson's Baby Lotion following an accumulated experience of over 10,000 baby days.

The findings indicate that the new Johnson's Baby Lotion is a specific preventative and therapeutic agent for the five most common skin afflictions of infancy: impetigo contagiosa, miliaria rubra, intertrigo, excoriated buttocks, and diaper rash.

Description and Pharmacologic Action

Johnson's Baby Lotion consists of a nontoxic, nonirritating oil-in-water emulsion, which, when placed upon the skin, produces a discontinuous film having the ability to protect the skin from external irritative agents, but without interference with the transpiration of water vapor and other physiologic functions of the skin.

Johnson's Baby Lotion, by virtue of its bacteriostatic and bactericidal properties, produces a marked and prolonged suppression of the resident bacterial flora of the skin, thus offering a substantial degree of protection against superficial infection.

Clinical Evidence

In 8 large hospitals, under the guidance of pediatricians and dermatologists, clinical investigations have been conducted on the new Johnson's Baby Lotion containing hexachlorophene* in a concentration of 1% as an antiseptic agent. Herewith are pertinent excerpts from the reports. (Complete reports available on request.)

(*Hexachlorophene has been adopted by the Council on Pharmacy and Chemistry of the American Medical Association as the generic designation of Dihydroxyhexachlorodiphenyl Methane.)

In a Pennsylvania Hospital: "Conclusive evidence has been obtained that the hexachlorophene lotion is less irritating than ammoniated mercury, commonly used in newborn nurseries, and is more effective in preventing the minor skin irritations and superficial

infections common to the newborn."

In another Pennsylvania hospital: "In the height of an epidemic of impetigo the hexachlorophene lotion not only prevented babies from developing lesions, but on those babies who were affected, the lesions were few, discrete, and disappeared quickly without any other therapy. The epidemic of impetigo, which had been continuing for four months, ceased within a period of a week to ten days after the lotion was used on all babies in the nursery.

"It was concluded that the lotion exhibited an antibacterial effect which was sufficient to modify remarkably the course of a virulent epidemic of impetigo contagiosa."

In a New York State Hospital: "The hexachlorophene lotion was found to be unusually satisfactory in the routine care of the skin of infants beyond the newborn period and to be prophylactically effective in minimizing the incidence of diaper rash and miliaria."

In a Nebraska Hospital: "We saw no evidence of irritation from Johnson's Baby Lotion either in the babies on whom the lotion was applied or among the nurses applying the Lotion. We did not see at any time during our work any sensitivity to Johnson's Baby Lotion and on some of our children the Lotion has been applied at various times for a period of four months."

Summary

All clinical evidence indicates that the new formula of Johnson's Baby Lotion, containing hexachlorophene, is outstandingly effective in the prevention and cure of the major skin afflictions of infancy: impetigo contagiosa, miliaria rubra, intertrigo, excoriated buttocks, and diaper rash. Free samples of Johnson's Baby Lotion are available for your examination and for distribution to patients.

complete topical treatment for middle and external ear infections

1. High Antibacterial Potency—high concentration of sulfa-urea at site of infection.
2. Chemical Debridement—infection site rapidly cleansed—odors reduced, and waste material removed.
3. Analgesic and Antipruritic—pain and itching relieved by chlorobutanol.
4. Fungicidal Action—common fungous pathogens inhibited.
5. Hygroscopic—excess moisture absorbed, decongestive action.

White's Otomide is a stable solution of 5% Sulfanilamide, 10% Carbamide (Urea) and 3% Anhydrous Chlorobutanol in glycerin of high hygroscopic activity.

Supplied in dropper bottles of ½-fluid ounce (15 cc.)

White's

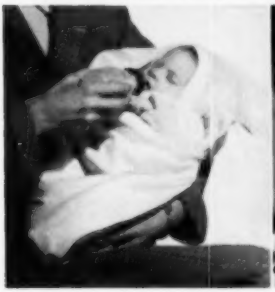
Otomide

Five-Fold Attack Against Ear Infections

WHITE LABORATORIES, INC., Pharmaceutical Manufacturers, Newark , N. J

Carnation Helps the Doctor Eliminate "Unknowns"

1. During formula days...
Carnation Milk...with water and carbohydrates...is the safe, time-tested formula every doctor knows.



2. After formula...
Carnation diluted with an equal amount of water is nourishing whole milk that's completely uniform and easier to digest.

3. and in the baby's cup!
there's no "strange flavor" to complicate the changeover from bottle feeding.

There are enough "unknowns" in the life of an infant for the doctor to worry about. That is why doctors, for 50 years, have welcomed the *known* dependability and *uniformity* of Carnation Evaporated Milk. Carnation's *"prescription accuracy"* gives the doctor more complete control over the health and progress of the child.

And when the doctor takes baby "off formula"—the *same*, time-tested qualities of Carnation Milk are important. Carnation Milk is rich whole cow's milk — evaporated, homogenized, enriched with vitamin D, pasteurized and sterilized under rigid control in Carnation's *own* plants.

Then, when the child is ready to drink from the cup, doctors appreciate Carnation's year-in-year-out uniformity — in butterfat, milk solids, curd tension, viscosity, for example. There is no "strange flavor" to make the baby resist the change to cup drinking—no other "unknown factors" which might cause upsets.

Yes, from the first formula feeding... right on through a healthy childhood ...there is no finer, safer milk than Carnation. You can recommend it *by name* with complete confidence.

8 out of 10 mothers raising their children on Carnation report that it was recommended by their doctor.

The Milk Every Doctor Knows

"From Contented Cows"

FOR HOME USE!

Terminal Sterilization*

with the NEW Baby-All System

The NEW Baby-All FORMULA & STERILIZER OUTFIT

Now Baby-All not only offers mothers a miniature hospital outfit, including all accessories for preparing baby's formula at home—but a complete *system* for Terminal Sterilization—the very latest hospital technique!

With the Baby-All System of Terminal Sterilization, the formula together with bottles, nipples and shields are all sterilized *in one operation.*

In addition, positive sterilization is assured because, with the new Baby-All Shielded Nurser, the formula and nipple are sealed and the nipple *untouched by human hands* up to the moment of feeding. *Just lift shield and use.*

6 Models — Electric and Non-Electric
Accommodate all standard nursers

Demonstrated to Mothers in Hospitals and Maternity Centers. Sold at Surgical Stores, Infants Departments and Drug Stores.

***Terminal Sterilization technique is recommended by Pediatricians and Health Authorities everywhere.*

Write for further information.

SANIT-ALL PRODUCTS CORP.
Greenwich, Ohio

Makers of "Baby-All" Nursery Appliances and "Vapor-All" Vaporizers

Plus

The NEW Baby-All SHIELDED NURSER

Untouched and *Sterile* to the Moment of Feeding

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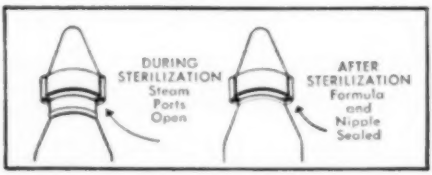

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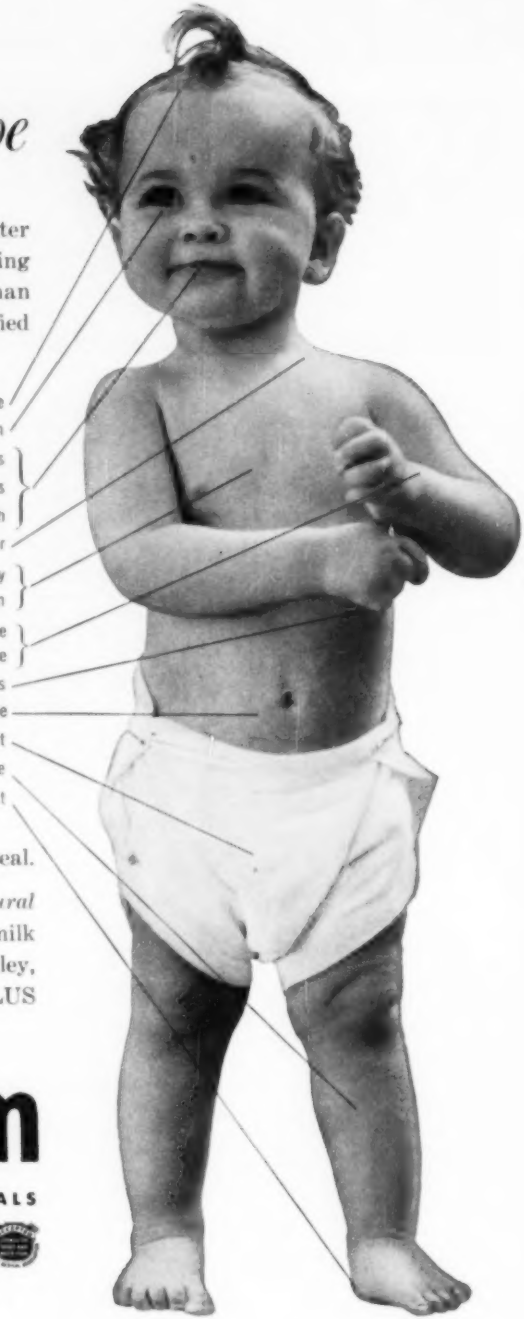

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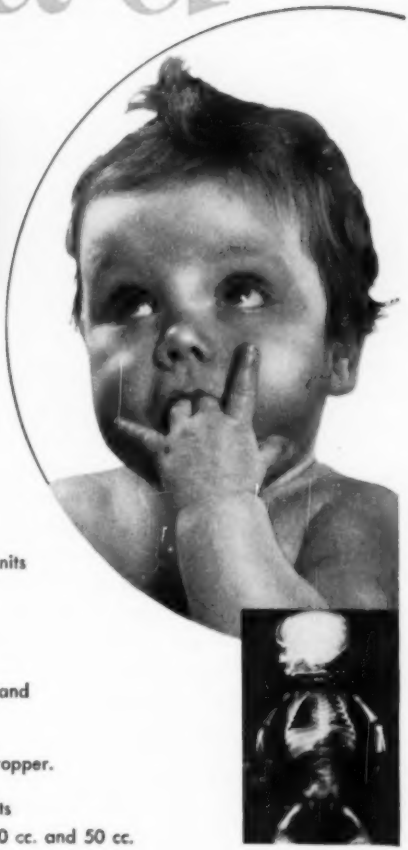

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Quarterly Review
of
PEDIATRICS

Volume 5 Number 2

May 1950

1. Allergy

An Evaluation of Radium Treatment to the Nasopharynx in Asthmatic Children. *Victor L. Cohen and Wilbur J. Fisher, Buffalo, N. Y.* J. Allergy 20: 328–34, Sept. 1949.

A method of rating was devised on the basis of the following observations in order to estimate the severity of asthma in 15 children (ages 4 to 16 years, average age 8.5 years) treated by application of radium to the nasopharynx according to the method of S. J. Crowe: 1) 1 point for each teaspoonful, capsule or tablet of antiasthmatic medication; 2) 3 points for each aminophyllin suppository taken; 3) 5 points for each injection of epinephrine or intravenous aminophyllin received; 4) 1 point for each day of asthma reported; 5) 5 points for each day the patient was hospitalized for asthma; 6) 5 points for sibilant and sonorous râles heard in the chest on auscultation. Patients were scored at each visit (usually every other week). The scores were arranged according to the weeks subsequent to the completion of the radiation therapy, totaled and graphed. No specific antiasthmatic therapy was used during the period of study. The results were as follows: 1) improvement for nine weeks after radium therapy; after nine weeks until the fifteenth week improvement was not as perceptible and from the sixteenth to the thirty-fourth week the asthma was definitely worse; 2) a comparison of the improvement obtained by children who had high sedimentation rates previous to radium therapy with those who had normal sedimentation previous to therapy indicated that those children who had high sedimentation rates obtained better results, which would indicate that those who harbored infection in their nasopharynx obtained better results from the treatment; 3) a comparison of those children who had the greater amount of adenoid tissue (as determined by a lateral x-ray film) was made with those with the lesser amount of adenoid tissue. The response in the group with the smaller amount

was not as prompt initially as those with a greater amount, but was more sustained and lasting; 4) a comparison of the results obtained in the group having hyperplastic sinusitis with those having normal sinuses showed a more rapid response initially in those having hyperplastic sinusitis, but those with normal sinuses over the entire course of the study obtained the better response to the treatment.

The author concludes that: 1) radium treatment to the adenoids should be used only as auxiliary treatment to specific therapy in childhood asthma; 2) if radium treatment is considered for therapy of the asthmatic child, better results may be anticipated in a case with an increased sedimentation rate, normal sinuses and little or no adenoid tissue.—*Author's abstract.*

Roentgen Therapy of the Adenoids in Infancy (*La radioterapia delle adenoidi nel lattante*). R. Clementi and R. Bourdon, Bretonneou Hospital, Paris. Lattante 20: 577–91, Oct. 1949.

The respiratory difficulties resulting from enlarged infected adenoids in infancy may produce facial and dental deformity, nasal voice, anemia, anorexia, impaired psychological development and deafness. Frequent illnesses secondary to chronic foci of infection also occur.

After twenty-three years' experience with x-ray treatment of the adenoids in infancy, this method, properly used, is believed harmless and superior to surgical or radium therapy. Radium therapy is conceded to be helpful in its application to a limited area in the treatment of some types of deafness. As a rule, 140 kv., a 5 mm. aluminum screen and a distance of 22 cm. through a jugular-malar portal are utilized. Doses varied from 50 to 100 r. per application, two to three times weekly with a total of 200 to 300 r.

Diminished nasal obstruction, easier respiration, better sucking and deglutition, diminished secretions and rapid subsidence of infection may be noted in some even after the first treatment. X-ray films, properly taken, also attest to the improvement of airway. Fever, emesis and malaise may follow the first dose.

In a large series (number not specified) 66% show almost complete improvement, 6%, partial and 27%, none. These figures cannot be compared with groups including older children and adolescents. 31 references. 7 figures.—*A. M. Bongiovanni.*

Relief of symptoms and restoration of adequate nasal respiration in only two-thirds of the cases does not compare favorably with adenoidectomy as done in this country.—Editor.

2. Anomalies, Genetics

Newborn Infant with an Abdominal Mass Resembling a Uterus Relatively Enlarged to the Size of a Nine Months' Pregnancy. *Nicholas M. Alter, Jersey City, N. J.* Bull. Margaret Hague Maternity Hosp. 2: 122–24, Dec. 1949.

A full-term baby (2585 Gm.) showed no striking external abnormalities. Gross and microscopic findings at autopsy showed an unusual combination of congenital abnormalities. The most striking feature was a large abdominal mass extending to the xyphoid process that resembled a pregnant uterus with two fallopian tubes, showing thickened proximal portions. The mass proved to be a vaginal cyst with squamous epithelial lining with atresia at the vulvar end. The proximal portions of the fallopian tubes were two uteri containing Gartner ducts. Other abnormalities can be summed up in the anatomic diagnosis: pseudohermaphroditismus, with atresia vaginae, resulting in a large vaginal cyst; uterus didelphys; atresia of the urethra; atresia of the rectum, with imprefect anus; atresia of the biliary ducts, with biliary cirrhosis; splenohepatomegaly; perihepatitis and perisplenitis; rhabdomyoma of the urinary bladder with enclosure of a Brenner tumor; harelip and cleft palate; congenital cystic lungs; bilateral hydronephrosis and hydro-ureters; mesenterium commune; internal hydrocephalus. 2 figures.—*Author's abstract.*

Instincts and Emotions in an Anencephalic Monster. *J. M. Nielson and R. P. Sedgwick, Los Angeles, Calif.* J. Nerv. & Ment. Dis., 110: 387–94, Nov. 1949.

An anencephalic monster was studied during its 85 days of life. Crying was normal and it occurred in response to rough handling and to hunger. It showed signs of contentment when coddled and would become quiet when a finger or a nipple was placed into its mouth. It sucked vigorously. It had an active "Moro reflex," throwing its arms out in obvious fright when allowed, in the supine posture, to fall two inches on our hands. It was able to hang by its reflex grasp for at least 30 seconds (it was never allowed to fall). Bowel and bladder function was normal.

Autopsy showed no structure above the thalamus and only a part of that nucleus. There were no pyramidal tracts. The conclusion is drawn that crude instincts and emotions must have their neuronal pattern in the structures present and this conforms to the impression previously gained from a study of Flechsig's sections of newborn and premature infants in which there is no myelination of any of the association systems of the pallium. It is agreed that the cerebrum contributes enormously to emotions in a normal person by providing knowledge, conditioning and memory which form material for the emotions. 4 figures.—*Author's abstract.*

3. Blood, Hemopoietic System

Variable Response to Vitamin B_{12} of Megaloblastic Anemia of Infancy. *Calvin W. Woodruff, Howard W. Ripy, J. Cyril Peterson and William J. Darby, Vanderbilt University School of Medicine, Nashville, Tenn.* Pediatrics 4: 723–29, Dec. 1949.

The differentiation of megaloblastic anemia followed the introduction of liver extract and pteroylglutamic acid and the development of technics, for the study of bone marrow smears. The introduction of a new hematopoietic agent, vitamin B_{12}, is another tool for observation of megaloblastic anemia.

Three infants with well-marked megaloblastic anemia were followed for their response to vitamin B_{12}. In two of these the improvement obtained was equivalent to that seen following the administration of folic acid or potent liver extracts. The third infant did not respond to vitamin B_{12} but did respond subsequently in an entirely characteristic manner to the administration of folic acid. These studies indicate that megaloblastic anemia is a syndrome of variable causation. 8 references. 3 figures.

The Relation of Rh Incompatibility to Abortion. *Bently Glass, Ph.D. The Baltimore Rh-Typing Laboratory, Baltimore, Md.* Am. J. Obst. & Gynec. 57: 323–32, Feb. 1949.

No significant increase in abortion was found among 209 Rh-negative sensitized women out of a total of 6,003 pregnancies in 3,171 white women. 16 references. 5 tables.

This confirms what has already become rather generally accepted—that the Rh factor through the medium of Rh sensitization can lead to severe damage to the fetus near the end of pregnancy, but should not be blamed as the cause of abortions.—Editor.

The Clinical and Roentgen Manifestations of Erythroblastosis Fetalis. *Max Ritvo, Irving A. Shauffer and Gerald Krosnick, Boston City Hospital, Boston, Mass.* Am. J. Roentgenol. 61: 291–301, March 1949.

The roentgen study of the fetus in utero may be a valuable adjunct to the clinical diagnosis of erythroblastosis fetalis in some cases. Roentgen observations at time were: 1) soft-tissue edema, especially about the head, face and chin, producing a halo-like appearance; 2) skeletal abnormalities consisting of a marked increase in density of the bony skeleton of about the same degree as in osteopetrosis but without fractures, and 3) fetal death as evidenced by overlapping of the skull bones. 29 references. 15 figures.—*M. Maresh.*

Simultaneous Capillary and Venous Hemoglobin Determinations in the Newborn Infant. *Leon Oettinger, Jr. and Willard D. Mills, Vanderbilt University Medical School and Nashville General Hospital, Nashville, Tenn.* J. Pediat. 35: 362–65, Sept. 1949.

The hemoglobin content of capillary and venous blood was determined for blood specimens obtained within an hour of birth, at 5 days, and at 3 weeks of age. The first reflected the conditions at birth. The five-day sample was taken at the usual time of discharge from the hospital and reflected early hemoglobin concentration and the three-week sample was taken when physiologic equilibrium should be established. Capillary blood was obtained from puncture wounds of the great toe and venous blood from the internal jugular vein. Dilutions were made immediately so that no anticoagulant was necessary.

The hemoglobin content of the capillary blood in the one-hour specimen averaged 3.6 Gm. greater than that of venous blood in all subjects. The capillary blood of the five-day specimens had a higher hemoglobin content than the first day and averaged 2.2 Gm. more hemoglobin than the venous blood. Capillary blood in the three-week specimens averaged 1.1 Gm. more hemoglobin than the venous blood.

Differences in the source of blood partially explain previously reported variations in hemoglobin values. The hemoglobin content of the capillary blood is always greater than in the venous blood and comparative studies should use hemoglobin from the same source. The reason for the difference between the hemoglobin content of the capillary and venous blood is unknown. It is suggested that the capillaries are collapsed at the time of birth and the circulation is poor. The larger, heavier cells are trapped by the capillaries and do not return to the general circulation. The hemoglobin content of the peripheral and venous blood approaches an equilibrium as the child recovers from the shock of birth. The transitory rise during the first few days after birth is explained as a result of dehydration. 4 references. 3 tables. 1 chart.

An Epidemic of Infectious Lymphocytosis with Diarrhea. *M. G. Peterman, J. D. Kaster, Eli A. Gecht and G. L. Lembert. Milwaukee County Hospital, Milwaukee, Wis.* Pediatrics 3: 214–21, Feb. 1949.

A group of 28 cases of infectious lymphocytosis is reported. This disease is characterized by a marked leukocytosis with a high percentage of lymphocytes and essentially no symptoms. Most of the previous epidemics and the one described here have come from children's institutions. This epidemic was unusual in that diarrhea developed in 16 of the 28 cases, lasting two to nineteen days. Few other symptoms were noted. Emesis, slight abdominal pain, epistaxis, nasal discharge, slight lymphadenopathy, slight splenomegaly or low-grade fever were other

signs and symptoms noted in a few patients. The leukocyte count ranged from 18,900 to 147,000 per cm., and the lymphocyte counts ranged from 64 to 94%. These cells were all mature, normal lymphocytes. All the sedimentation rates were normal and the heterophile agglutination tests were normal in all but one case.

The disease must be differentiated from infectious mononucleosis, leukemia, pertussis and other contagious diseases giving high leukocyte and lymphocyte counts. 15 references. 2 tables.—*J. H. Githens, Jr.*

This disturbance—it is almost too mild to be termed a disease—was first described and identified less than ten years ago, and already it is being recognized as widespread and common over the world.

Since glandular fever is now synonymous with infectious mononucleosis, care should be exercised before every illness associated with swelling of various lymph nodes is designated as glandular fever. The two fundamental criteria of diagnosis in infectious mononucleosis were not present in the series of cases cited by the author. The heterophile test was negative, and more important, there were no atypical mononuclear cells. In infectious mononucleosis the most distinctive diagnostic feature is the presence of atypical lymphocytes. These apparently were not noted by the author. The presence of an increased number of eosinophiles in some of his cases is not diagnostic of glandular fever. It is possible that the group of cases here reported were those of atypical mumps.—EDITOR.

Hemolytic Disease of the Newborn: Criteria of Severity. *P. S. Mollison, and Marie Cutbush, Medical Research Council Blood Transfusion Research Unit, Postgraduate Medical School of London, England.* Brit. M. J. 1: 123–30, Jan. 22, 1949.

The authors have done careful hematologic and serologic studies on 74 babies with erythroblastosis fetalis and 52 who were normal. Low cord blood hemoglobin levels were shown to be well correlated with the severity of erythroblastosis, while the hemoglobin values for venous blood taken several hours after birth might be misleadingly high if the cord were not clamped immediately at birth. Capillary blood samples gave higher hemoglobin values than venous blood. A positive correlation was also shown between the degree of erythroblastemia at birth and the severity of the disease. There was fairly good correlation between the hyperbilirubinemia and the degree of anemia as measured by the hemoglobin level, and also a similar correlation between hyperbilirubinemia and severity of disease. With the direct Coomb's test, the strength of the positive reaction was not a valuable criterion of severity of the disease. The titer of free antibody in the babies' sera showed no significant correlation with severity. High titers of albumin anti-

bodies in the mothers' sera were significantly related to severe disease in the baby. From analysis of the cases in which the mothers' antibodies were "predominantly saline agglutinins," it was concluded that this type of antibody has little or nothing to do with clinical erythroblastosis except that it may mask a somewhat lower titer of albumin antibodies. Venous pressure was measured in the umbilical vein in a number of babies. Normal values, measured from the level of the xyphoid, were found to be below 5 cm. of saline. In several babies with severe anemia, values of over 9 cm. of saline were found. 27 references. 4 tables. 7 charts.

This is a thorough and well-documented paper. It and its companion paper (Lancet 2: 522, Oct. 1948, abstracted in the Quarterly Review of Pediatrics, 4: 213–14, Aug. 1949.) are worthy of detailed study, particularly for the clinical methods used. Some of the conclusions, particularly as regards kernicterus, are arguable, but for the greater part are fully justified by the material presented.—EDITOR.

A New Human Hereditary Blood Property (Cellano) Present in 99.8% of all Bloods. *Philip Levine, May Backer, Milton Wigod and Ruth Ponder, Ortho Research Foundation, Raritan, N. J. and Nassau Hospital, Mineola, N. Y.* Science 109: 464–66, May 6, 1949.

A new agglutinogen of human blood was recently demonstrated with the aid of an immune agglutinin produced by the mother of an infant with a mild form of hemolytic disease. This blood factor is referred to by the patient's name, "Cellano," and its antibody as "anti-Cellano." Its presence was demonstrated in 99.8% of 2500 blood specimens submitted for Rh testing. In a series of 150 Negroes, all blood specimens were found to contain this factor, which is independent of the AB, MN, and Rh-Hr systems.

Parallel tests with anti-Cellano and anti-Kell serums indicate that the genes determining the Cellano and Kell antigens are alleles. The letters "K" and "k" already have been used by the British workers for the genes determining Kell-positive and Kell-negative reactions respectively. The gene can now be considered as indicating the presence of the Cellano factor. As in the case of M and N and the Rh-Hr systems, there are three genotypes (KK, Kk, kk) corresponding to three phenotypes. 9 references.

Mediterranean Hemopathic Syndromes. *V. Chini and C. Malaguzzi Valeri, University of Bari, Bari, Italy.* Blood 4: 989–1013, Sept. 1949.

The term "Mediterranean hemopathic syndromes" is proposed for a group of blood conditions with a high incidence among the populations of some Mediterranean countries, which have in common certain

hematologic abnormalities. The disturbances represent different varieties of one great group of constitutional and hereditary blood diseases.

"Cooley's anemia" is the name suggested for the most severe variety. Its severity is ascribed to the lethal homozygous effect of the presence of the trait in both parents.

Milder forms of "Mediterranean hemopathic syndromes" are widespread through some districts of Italy. Many of these fit into the syndrome that is called "thalassemia minor" by Valentine and Neil, and "hemolytic jaundice with decreased red cell fragility" by many Italian authors. The fundamental feature in these cases is the presence of an increased resistance of the red cells to hypotonic solutions. Other less constant features are hypochromic microcytosis, ovalocytosis and poikilocytosis. Only one parent will be found affected, and hence the inheritance pattern is heterozygous. Other family members are often affected similarly.

Emphasis is directed to the great variability in the intensity of symptoms displayed by these milder cases. The microcytic anemia is often accompanied by large, pale, thin macrocytes, whose hemoglobin content is unevenly distributed within the cell (target cells and leptocytes) and which are characteristic of Cooley's anemia as well as the milder forms. Anemia may or may not be associated. When present it is benefited but slightly by the usual anti-anemic remedies (liver extracts, iron, blood transfusions). Slight splenomegaly may be present. These milder cases can exhibit widely different pictures. Some of the names applied have been target-cell syndrome, target-oval cell syndrome, ovalo-poikilocytic hypochromic anemia, familial microcytic anemia, constitutional microcytic anemia, etc. Other anemias may also belong in this group. It is suggested that all be called "varieties of the anemic form" of the Mediterranean hemopathic disorder. Anemia is usually markedly hypochromic, less frequently hyperchromic. In the hypochromic cases there is nearly always microcytosis; with hyperchromia, macrocytosis may also be found. A blood picture much resembling Cooley's anemia, with the exception of circulating erythroblastosis, may be found. Stippled cells and target cells (Dameshek) are present but the latter do not appear to be characteristic of these forms. There is marked hyperplasia and erythroblastic anaplasia of the bone marrow. None of these is true pernicious anemia.

Many of the cases of "Mediterranean hemopathic syndrome" have a marked hemolytic element. No erythroblasts are found in the circulating blood and hemolysis is increased. They may exhibit jaundice and marked splenomegaly and have intense hemolytic crises. The hemolytic disturbance may respond effectively to splenectomy. The spleen shows histologic changes of the "hemolytic" type with no erythropoietic metaplasia, which is a differentiating point from Cooley's anemia. The main feature in these cases is the increased hemolysis.

Operation is followed by reduced hemolysis, but has no effect on the morphologic changes, which may even become accentuated after splenectomy. Some patients after splenectomy show a marked and persistent erythroblastemia, and some may have jaundice and high indirect bilirubin readings but no signs of increased hemolysis. Bone lesions may develop.

It has been suggested that many subjects with jaundice have a derangement of liver function in the sense that the transformation of bilirubin from the "indirect" to the "direct" form and its subsequent elimination from the blood does not take place.

The elements common to all these varieties are: 1) almost exclusive limitation to Mediterranean people; 2) presence of a constitutional, familial and heredity elements; 3) increased resistance of the red cells to hypotonic solutions. The frank picture of Cooley's anemia becomes manifest when the trait is inherited from both parents. The trait is dominant in heterozygous individuals. The manifestations represent a profound structural disorder of the red cell whose nature is still obscure. A physical feature frequently but not necessarily associated is an increased distance between the zygomas or unusually high and thick zygomas.

Within the families of individuals who carry the trait may be found other members with a hemolytic state, slight increase of the red cell fragility, and an increase in the maximal resistance or spherocytosis. The origin and importance of this hemolytic mechanism remain to be worked out. The nature of the biochemical alteration in the erythrocytes in this family of disorders is also not clear. Because of the hereditary pattern it is advisable to discourage marriage between persons who are carriers of the disorder. 277 references. 6 tables.

Puzzling forms of anemia not exactly typical of mild Cooley's anemia are often seen in families of Italian origin in this country. These disturbances have so low a frequency that no one physician or clinic in North America can acquire a wide familiarity with all variants.

The above paper owes its significance to its country of origin. Variant cases are much more common where the population is almost entirely of South Italian stock. The working out of the genetic and other mechanisms which underlie the diversity of Mediterranean hemopathic syndromes will undoubtedly lead to generalizations of significance in normal and abnormal conditions in other races.

Within the past year we have seen several individuals of Italian ancestry with bizarre anemia suggestive but superficially different from the usual mild or carrier form of Cooley's anemia. Two of these had hemolytic phenomena, one had ovalocytosis, and one had anemia and splenomegaly but no alteration in osmotic resistance of the red cells.—Editor.

4. Cardiovascular System

Occurrence of Innocent Adventitious Cardiac Sounds in Childhood. *Sidney Friedman, William A. Robie and T. N. Harris, The Children's Hospital of Philadelphia and University of Pennsylvania, Philadelphia, Pa.* Pediatrics 4: 782–89, Dec. 1949.

A group of 500 children between the ages of 2 and 12 was subjected to a special cardiac examination. Of these, 234 (46.8%) had functional cardiac murmurs and 137 (27.4%) had extra cardiac sounds. No correlation was found between these sounds and the degree of anemia present, the age, color, sex or state of nutrition, or the body temperature. The functional cardiac murmurs in the midprecordium were commonly of the vibratory type, while those in the pulmonic region were chiefly of the blowing type. Most helpful in the differentiation of functional from organic heart murmurs in childhood were the acoustic quality and the points of maximal intensity. 19 references. 2 figures. 1 table.

Difficulties in Evaluating Systolic Murmurs in Children. With Special Reference to the Functional Systolic Murmur. *Marlow B. Harrison, San Francisco, Calif.* California Med. 71: 325–28, Nov. 1949.

In a review of the cases in the Children's Cardiac Diagnostic Clinic of the San Francisco Health Department, it was found that most of the children were referred because of the presence of a "heart murmur" which, so far as the parents were concerned, meant "heart disease." In an attempt to decrease the amount of needless cardiac invalidism, both physical and mental, which frequently follows a diagnosis of "heart disease" due to the presence of a functional systolic murmur, a review of the various characteristics of functional systolic murmurs is presented.

It is essential to be famliar with the range of the normal heart sounds, recognizing their characteristics as well as those of the third heart sound, this latter being a frequent normal sound, not to be wrongly diagnosed as a murmur.

When a murmur is determined to be systolic or diastolic, the following characteristics of the functional systolic murmur are re-emphasized:

1) The location of maximal intensity of the murmur; a functional systolic murmur may occur in any of the so-called "valve areas" of auscultation.

2) The intensity of the murmur itself, that is whether it is very loud, very faint, or of some intervening intensity, and it is stressed that a single method of grading intensity of murmurs should be used consistently so that the intensity of a murmur may be compared at different times in the same patient; almost all functional systolic murmurs are faint.

3) The quality of the murmur, that is whether it is blowing, rough, rumbling or harsh; functional systolic murmurs are blowing in character.

4) The transmission of the murmur; functional systolic murmurs are usually faint, and therefore are not transmitted, at least not over a wide area.

5) The time during systole that the murmur is heard; functional systolic murmurs seldom begin with or immediately follow the first sound. There is usually a short auscultatory gap between the first sound and the beginning of the functional systolic murmur.

Modifications of the characteristics of a functional systolic murmur due to respiration and changes of body position are pointed out, as well as the differences in the functional systolic murmurs in the various auscultatory "valve areas." In those cases in which some doubt exists as to whether a systolic murmur is functional or organic, reliance on history and physical examination, particularly auscultation, is insufficient. Further studies such as fluoroscopy, and electrocardiography should be undertaken to determine the presence or absence of organic heart disease.

It is also stressed that until a diagnosis of organic heart disease can be made with reasonable certainty, a patient should not be restricted during a period of observation for possible change in the systolic murmur because of the likelihood of development of a cardiac neurosis in the patient and the economic and emotional burden to the patient's parents. 4 references.—*Author's abstract.*

Paroxysmal Ventricular Tachycardia with Subsequent Myocardial Lesions. *Maj. Levander-Lindgren, Central Hospital, Ostersund, Sweden.* Acta pædiat. 2: 179–87, 1949.

The patient, a girl 8-years-old, had an attack of paroxysmal tachycardia. She had had previous attacks in the preceding month from which she had recovered promptly. Electrocardiographic studies indicated a ventricular tachycardia with independent auricular rhythm. During the attack the patient became cyanotic, but the cyanosis was relieved and normal rhythm restored by carotid pressure. After the attack of paroxysmal tachycardia, an electrocardiogram showed changes in the terminal deflections that are characteristic of coronary insufficiency or hypoxia of the heart muscle. As there was nothing in the history of this patient to indicate any myocardial lesion previous to the attacks of paroxysmal tachycardia, the author considers the electrocardiographic changes after the least attack to be due to hypoxia resulting from the attacks of tachycardia. 22 references. 4 figures (electrocardiograms).

5. Chemotherapy, Drugs, Poisons, Physical Agents

The Use of Antibiotics. *Perrin H. Long, Caroline A. Chandler, Eleanor A. Bliss, Morton S. Bryer and Emanuel B. Schoenbach, Johns Hopkins University School of Medicine, Baltimore, Md.* J. A. M. A. 141: 315–17, Oct. 1, 1949.

From an analysis of current information an outline is given of a choice of antibiotics for the treatment of infections of average severity.

TABLE 1.—*Present Day Usage of Antibiotics in Infections*

Type of Infection or Disease	Penicillin G	Streptomycin	Aureomycin	Chloramphenicol
Group A beta hemolytic streptococcic infections	I	III	II	—
Alpha hemolytic streptococcic infections	I	II	II	—
Streptococcus faecalis infections (group D)	II	—	I	—
Pneumococcic infections	I	III	II	—
Meningococcic infections	I	—	U	U
Gonococcic infections	I	II	III	III
Staphylococcic infections				
A. Mild or moderate	I	—	II	—
B. Severe	I*	—	II*	—
Whooping cough	—	?	?	I
Typhoid	—	—	II	I
Influenzal meningitis				
A. Moderate	—	—	I	U
B. Severe	—	II + S.D.	I + S.D.	U

Key: I indicates first choice; II, second choice; III, third choice. A blank signifies that the drug is of little value. U means that the effect is unknown. S.D. stands for sulfadiazine.
* Combined therapy is used.

Since the sulfonamide drugs, penicillin, streptomycin, aureomycin and chloramphenicol attack different systems in susceptible infecting microorganisms, combined therapy is often indicated.

With both chloramphenical and aureomycin, the maintenance doses should be given until the symptoms and signs are controlled and the temperature has been normal for at least forty-eight hours. With rickettsial infections it is generally safe to cease at this point. With bacterial and viral infections, the dose may be halved at this point and its use continued for five to seven days, except with bacteremia or meningitis. With these the dosage level should be higher until the patients are well.

TABLE 2.—*Present Day Usage of Antibiotics in Infections*

Type of Infection or Disease	Penicillin G	Streptomycin	Aureomycin	Chloramphenicol
Urinary tract infections				
A. Escherichia coli		II	I	I
B. Aerobacter aerogenes		II	I	I
C. Proteus vulgaris		II		I
D. Pseudomonas aeruginosa		I		II
E. Streptococcus faecalis	II		I	
Tuberculosis		I	U	U
Friedlander's bacillus infections		I	U	U
Bacillary dysentery			U	U
Subacute bacterial endocarditis				
A. Alpha streptococcus	I		II	
B. Str. faecalis (group D)	I*	I*	I*	
C. Staphylococcic	I*		II*	
D. Gram-negative bacillary		I*	I*	I*
Pulmonary conditions (preoperative and postoperative)	I	I	U	U

Key: I indicates first choice; II, second choice; III, third choice. A blank signifies that the drug is of little value. U means that the effect is unknown. SS stands for succinylsulfathiazole.

* Combined therapy is used.

TABLE 3.—*Present Day Usage of Antibiotics in Infections*

Type of Infection or disease	Penicillin G	Streptomycin	Aureomycin	Chloramphenicol
Rickettsial diseases			I	I
Primary atypical pneumonia			I	U
Syphilis	I		II	
Rat bite fever				
A. Spirillum minus	II		I	U
B. Streptobacillus moniliformis		I	U	U
Gas Gangrene	I–S.D.		U	U
Rheumatic fever (prophylaxis only)	I or S.D.			

Key: I indicates first choice; II, second choice; III, third choice. A blank signifies that the antibiotic is of little value. U means that the effect is unknown.

S.D. stands for sulfadiazine.

With many patients nausea or vomiting can be controlled by giving some antacid with each dose of antibiotic. The severe vomiting which may occur with aureomycin taken by mouth can frequently be eliminated by a shift to intravenous therapy. It has been noted that when apparently adequate doses of aureomycin administered by mouth have not achieved the desired effect, a shift to intravenous injections will bring about a prompt betterment of the condition. 5 tables.

TABLE 4.—*Dosage Schedules of Aureomycin and Chloramphenicol for Children*

Severity of Illness	Aureomycin				Chloramphenicol	
	Initial Priming Dose, Mg. per Kg. of Body Weight		Total Daily Maintenance Dose, Mg. per Kg. of Body Weight		Initial Priming Dose, Mg. per Kg. of Body Weight	Total Daily Maintenance Dose, Mg. per Kg. of Body Weight
	Oral*		Oral†		Oral*	Oral†
Moderate	10		25–50		60	30–60
	Oral*	Intravenous‡	Oral†	Intravenous§	Oral	Oral
Severe	20	5	100	15	60	60–120

* The oral priming dose should be split into three parts and given at hourly intervals for three hours.

† The oral maintenance dose should be split into six parts and a part given every four hours.

‡ The intravenous priming dose should be given in one dose.

§ The intravenous maintenance dose should be split into three parts and a part given every eight hours.

Studies on the Absorption of Penicillin Administered by Aerosol (*Ricerche sull'assorbimento della penicillina somministrata per aerosol*). *G. F. Coduri, Pediatric Clinic, University of Milan.* Lattante 20: 334–42, June 1949.

Aerosol penicillin affords more effective contact between antibiotic and the infecting organisms in pulmonary infections; furthermore, it results in significant absorption of the drug into the blood-stream. With proper administration it can penetrate the entire bronchial tree, down to the alveoli, as demonstrated with nebulized radiopaque material.

In 10 patients, oral inhalation of 100,000 units, to the exclusion of nasal (by tamponade), versus nasal inhalation demonstrates the superiority of the latter. The blood levels, determined by bacteriologic methods of inhibition, were always higher and more sustained with nasal administration. These were 1.25 to 3.0 times greater at one hour and usually two or more times greater at four hours. The blood levels exceeded those attained by intramuscular injection so that 50,000 units by nasal inhalation produced levels over a four-hour period comparable to those of 80,000.

The levels attained in the blood stream were compared with the nebulized particle size. Using 100,000 units in 10 subjects (ages not stated) the blood levels were 0–1.8 (mostly below 1.0) when the particle size was 0.2–0.5 micra in diameter. It was suggested that the particles should not be less than 1.0 micron for effective therapy. 20 references. 7 charts.—*A. M. Bongiovanni.*

Acrodynia and Mercury Poisoning. *S. van Creveld and M. M. Paulsen, Nederl. Tijdschr. v. geneesk.* 93: 249–55, Jan. 22, 1949.

At the age of 19 months a boy showed some evidences of acrodynia although the picture was not complete. Two and three months previously he had received powders containing santonin and calomel. Examination of the urine showed 280 to 360 μg. of mercury per liter. The patient was treated with B.A.L. in the dosage recommended by Elmore. The first day after administration of B.A.L. the mercury content of the urine rose to 400 μg. per liter; after 13 days it decreased to 15 μg. per liter.

Clinical improvement was striking from the beginning of the treatment: the exanthema of the trunk disappeared quickly, the hands and feet became a normal color and were no longer cold or clammy, and the general condition improved. The pulse rate became normal in a few days. 13 references. 2 figures. 1 table.

Fatal Magnesium Poisoning Following Magnesium Sulfate, Glycerin, and Water Enema in Primary Megacolon. *E. N. Collins and P. W. Russell.* Cleveland Clin. Quart. 16: 162–66, July 1949.

A 4-year-old boy with primary megacolon was given an enema consisting of 2 ounces of a solution magnesium sulfate containing 30 Gm. of the hydrated salt, 4 oz. of glycerin, and 6 oz. of water. Without expelling the enema, the child fell asleep and was soon comatose, with complete flaccid paralysis and absent pupillary reflexes. The respiratory rate was 8 per min. A rectal tube was inserted and a subcutaneous injection of 0.4 cc. of prostigmine methylsulfate 1:4000 given. This caused release of about 1 pt. of liquid fecal material. Following artificial respiration, oxygen, and 0.2 cc. of nikethamide subcutaneously the respirations increased gradually to 16 per min. Despite continued supportive measures, including 2 cc. of a 10% solution of calcium gluconate injected into the jugular vein, and an equal dose injected intramuscularly, the patient died in respiratory paralysis.

The serum magnesium at autopsy was 30 mg. per 100 cc. (25 mEq. per liter) and the serum calcium was 20.8 mg. per 100 cc. A few similar cases are on record. Progressive increase in the serum magnesium level above the normal of 2.4 mg. per 100 cc. results in nervous depression. In the cat natural respiration disappears at 15 to 20 mEq. per liter, and cardiac arrest usually occurs at levels of 27 to 44 mEq. per liter.

A fact not sufficiently appreciated is that the gastro-intestinal membrane is permeable to the salts of magnesium. The rapid urinary excretion of magnesium which normally prevails prevents a significant rise in serum concentration. When excretion is depressed, as in nephritis, dangerous serum magnesium levels may be obtained with an ordinary

oral dose. It is estimated that this child absorbed at least 34% of the 3 Gm. of magnesium present in the enema. The reason for this absorption was not evident.

The only effective antidote in magnesium poisoning is parenteral administration of calcium ion. "The use of magnesium sulfate enemas is contraindicated in children with primary megacolon." 1 figure. 11 references.

6. Clinical Pathology

Lumbar Puncture as a Diagnostic and Therapeutic Method in Pathologic Conditions of the Newborn (*La ponction lombaire, moyen diagnostique et thérapeutique dans la pathologie du nouveau-né*). *C. Haquin.* Nourrisson 37: 264–71, Nov.–Dec. 1949.

In such conditions as vomiting and diarrhea, variations in temperature, loss of weight or pulmonary symptoms in the newborn, it is natural for the physician to suspect an infection, and to search for evidence of infection. In some cases of this type, however, the author has found that the symptoms may be due to an unsuspected cerebromeningeal lesion, which can be diagnosed only by lumbar puncture. Sometimes the fluid is clear, occasionally it is bloody, but more often xanthochromic. In such cases the lumbar puncture is not only of diagnostic value, but also of therapeutic value, as it has been found that the symptoms subside, and the infant's general condition improves promptly after this procedure. Nine illustrative cases are reported. 2 references. 8 figures (graphs).

Studies in Pancreatic Fibrosis. A Simple Diagnostic Gelatin Film Test for Stool Trypsin. *Harry Shwachman, Paul R. Patterson and José Laguna, Harvard Medical School and The Children's Medical Center, Boston, Mass.* Pediatrics 4: 222–30, Aug. 1949.

A new test for estimating the proteolytic activity of stools is described. Fecal suspensions are placed upon gelatin film (unexposed and unfixed) and the extent of removal of the gelatin film noted. The possibilities of bacterial or food origin of fecal tryptic activity have been considered and largely eliminated.

A correlation was made between the presence or absence of proteolytic enzymes in stools and the reliability of the gelatin film test as a diagnostic sign of pancreatic achylia as occurs in pancreatic fibrosis. Two groups of patients were compared: 1) 500 normal and sick individuals; 2) 50 patients with pancreatic fibrosis. In the first group, less than 5% of the infants lacked this proteolytic power. With older ages, this percentage increased. Administration of a laxative to some older children with absent tryptic activity produced stools with tryptic activity.

Of 220 separate stool specimens examined from patients in the second group, 209 specimens had no tryptic activity. The remaining 11 specimens from 7 patients showed activity. Three patients had minimal tryptic activity in the duodenal fluid. When oral pancreatin was given to patients with pancreatic fibrosis, the stools became positive for trypsin. When laxatives were given the stool trypsin test remained negative. The duodenal fluid was assayed in a number of infants with acute and chronic nutritional disturbances. Whenever tryptic activity was demonstrated in the duodenal fluid the stools showed the presence of trypsin.

The instructions for the gelatin film test are as follows: a dilution of stool to 1/5 is made by adding sufficient quantity of feces to 4 ml. of distilled water in a test tube with graduation mark at 5 ml. A further 1/10 dilution is similarly made. One large drop (approximately 0.1 ml.) of each well-mixed dilution is placed on a strip of unexposed, unfixed gelatin film such as is used in routine roentgenographic work. This may be clipped to a cardboard to prevent curling. The film is incubated at 37° C. for one hour. Although 37° C. is recommended, incubation for one and one-half to two hours at room temperature is satisfactory. After incubation, the film is washed in a stream of cold water with gentle rubbing. Clearing at the sight of the drop indicates enzyme activity. Complete clearing is designated as 4 +, slight clearing only at the periphery of the drop is 1 +. If the drop is small or if the specimen is too concentrated, the material will dry and cake. Proper bacteriologic precautions should be taken when dealing with suspected enteric infections. Controls should be run when performing the test for the first time or when using new gelatin film. The determination of the end point using normal infant stools or a standard trypsin solution is suggested. A comparison was made with a more sensitive test tube gelatin liquefaction test. Discrepancies between the film and tube methods occurred in less than 1% of the tests.

Three separate stool examinations by the film test are recommended as sufficient either to eliminate or to make probable the diagnosis of pancreatic insufficiency in infants. Conclusions and interpretations based on a single examination are hazardous. Whenever doubt arises, duodenal intubation is indicated. 16 references. 5 tables. 1 figure.

Determination of the Plasma Glycine After Gelatin Feeding as a Diagnostic Procedure for Pancreatic Fibrosis. *Halvor N. Christensen and Harry Schwachman, The Children's Medical Center and Harvard Medical School, Boston, Mass.* J. Clin. Investigation 28: 319–21, March 1949.

Retarded absorption of amino acids from ingested protein is known to result from faulty secretion of the pancreatic proteinases. A diagnostic test is proposed for pancreatic fibrosis, using ingested gelatin as

the test protein and the blood glycine level as the indicator for absorption. This amino acid was chosen because of the convenient method available for glycine analysis, the high glycine content of gelatin (25.5%), and the relatively slow disposition of this amino acid. The fasting plasma glycine level is compared with the level 150 minutes after gelatin feeding. In the test procedure the patient is given, six to twelve hours after the last meal, 1.5 Gm. of Knox gelatin per Kg. of body weight, in 30 ml. of warm water per Kg., either by mouth or by gavage. Venous blood is collected just before the feeding and two and one-half hours after. The plasma is separated at once, deproteinized with picric acid, and the glycine determined according to Alexander et al. (J. Biol. Chem. 160: 51, 1945).

Forty-nine patients, one month to 12 years of age, with symptoms of malnutrition and respiratory disease suggesting pancreatic fibrosis, were studied as to their plasma glycine responses to the feeding of gelatin. Of 24 patients having no significant tryptic activity in the duodenal fluid, 22 showed rises to not more than 2.5 times their fasting glycine levels. In contrast, 19 patients having good pancreatic enzyme activity showed increases to more than 2.5 times the fasting value (average, 5 times fasting level). Feeding of pancreatin with the gelatin changed the responses of either the glycine or amino nitrogen from the pancreatic-deficient range to the high normal range. Six patients showing definite, although small, tryptic activity in their duodenal fluids gave widely ranging responses to the test. One exceptional patient with evidence of normal secretion of pancreatic enzymes absorbed glycine poorly even when the amino acid was fed in the free state.

Duodenal intubation upon occasion may be troublesome. Mention is made of: 1) several instances where four or five separate unsuccessful attempts were made to obtain a satisfactory specimen from a patient; 2) the undesirability of the procedure in the severely ill infant, and 3) the occasional febrile reaction following intubation. The plasma glycine procedure is offered as an alternative diagnostic test. 4 references. 2 tables.

Concentration of PAS in Blood and Cerebrospinal Fluid of Infants Subjected to Administration of This Drug by Various Routes (*Considerazioni sul comportamento delle concentrazioni ematiche e liquorali in bambini sottoposti all'introduzione di PAS per varie vie*). *Armando Carnevale & Stefano Cutillo, Instituto di Clinica Pediatrica del' Universita di Napoli.* Pediatria 57: 365–71, Fasc. 5–6, 1949.

The concentration of para-amino salicylic acid (PAS) in the blood and cerebrospinal fluid was determined in a series of infants following oral, intravenous, intramuscular, rectal and intrathecal administration of the drug for pulmonary and meningeal tuberculosis. The blood and spinal fluid levels thirty minutes after oral administration of 0.1 mg. per Kg. of body weight, in a single dose, were 4.5 and 2.3 mg.% respectively; after two hours, 14.5 and 3.8 mg.%; after four hours, 6.3 and 3.2 mg.%; after seven to eight hours, 5.1 and 6.1 mg.%; and after eleven hours, only traces in the blood and 4 mg.% in the spinal fluid.

Following intramuscular and intravenous injection of PAS the concentration curves were very similar, namely, after fifteen minutes, 25 and 30 mg.%, after two hours, 20 and 16 mg.%, after four hours, 10 mg.% and after seven hours, about 4 mg.%. In cases without meningitis no traces of the drug could be found in the cerebrospinal fluid and no disturbances followed the intravenous injection. The therapeutic concentration of the drug, 6 to 10 mg.%, in the blood could be attained by oral administration of 0.50 mg. per Kg. of body weight daily in 4 to 5 doses. To obtain a rapid and more lasting concentration of the drug in the blood, 1 to 2 g. of the sodium salt of PAS may be injected intramuscularly or intravenously once daily. No ill effects were observed following injection of a 5% solution of 25 to 40 mg. PAS diluted with 4 to 5 ml. of cerebrospinal fluid. 9 references. 2 charts.

7. Endocrine System

Isolation of Pituitary Follicle-Stimulating Hormone (FSH). *Choh Hao Li, Miriam E. Simpson and Herbert M. Evans, University of California, Berkeley, Calif.* Science 109: 445–46, April 29, 1949.

A method is described for isolating FSH from sheep pituitaries. The hormone behaves as a single substance in electrophoresis and ultracentrifugation. Only follicular development is produced by it in the ovaries by hypophysectomized rats. Larger doses (total dose 2 mg.) over a four-day period did not show interstitial cell-stimulating, thyrotropic, adrenocorticotropic or growth-promoting activities. 1 reference. 2 figures.

This appears to represent another notable achievement in the field of endocrinology. The results of studies on the metabolic and clinical effects of this purified hormone will be awaited with interest.—Editor.

Effects of Pituitary Adrenocorticotropic Hormone (ACTH) in Children with Non-Addisonian Hypoglycemia. *Irvine McQuarrie, E. G. Bauer, M. R. Ziegler and W. S. Wright, University of Minnesota Medical School, Minneapolis, Minn.* Proc. Soc. Exper. Biol. & Med. 71: 555–59, Aug. 1949.

ACTH was used in the treatment of 5 young children with non-Addisonian (familial) hypoglycemia. Two of these children, a girl aged 1 year and her brother aged 4½ years, had been having frequent and severe hypoglycemic reactions, including numerous convulsions. Both had been subjected to partial pancreatectomy after a variety of therapeutic measures, including frequent feedings of a high-protein low-carbohydrate, or a high-carbohydrate diet, had failed to alleviate the condition. With each child an estimated 80 to 85% of the pancreas, histologically normal, had been extirpated. This radical procedure resulted in restoration of the fasting blood sugar to normal values with complete relief from hypoglycemic symptoms for a few weeks, and then the hypoglycemic state recurred. The other 3 patients (siblings in another family, aged 1, 2½ and 4½ years) were subject to severe hypoglycemic symptoms including convulsions whenever their food intake was reduced. These children were hospitalized on a metabolic ward, and given nutritionally adequate diets divided into three equal meals.

In each experiment, ACTH was administered intramuscularly in equal doses (either 9 or 10 mg. equivalent to Armour standard preparation LA-1-A) every six hours over a period of four days. The effects of ACTH were noted on the following: fasting blood sugar level and glucose tolerance test; potassium and inorganic phosphorus of the serum; nitrogen, phosphorus, chloride, sodium, and potassium balances; urinary excretion of uric acid, creatinine and adrenal corticosteroids; blood eosinophil counts.

The responses of these children to ACTH were similar to those reported for normal adult subjects. The severe hypoglycemia and attendant symptoms were completely abolished during the period of hormone administration and for at least a week afterwards. The sharp fall and the abnormally prolonged low level of blood sugar in the glucose-tolerance curves which represented the characteristic response of the patients during the control period did not occur during the period of ACTH administration, the curves becoming essentially normal. None of the patients had sugar in the urine at any time during the study, except for mild glycosuria which occurred at the height of the glucose tolerance test made in the ACTH period. Insulin hypersensitivity was likewise counteracted to a large extent. The eosinophils of the blood fell precipitately from the normal range (between 100 and

300 per cu. mm.) to between 0 and 10 per cu. mm. within four hours after ACTH was first administered, and remained at this low level so long as the hormone was given at six-hour intervals. The only untoward effects of the ACTH were a transient vasopressor reaction after each injection and a moderate tendency to oliguria during the first day or two of intensive administration. These effects appear to be due to contamination with posterior pituitary hormones.

The urinary excretion of 11-oxycorticosteroids and 17-ketosteroids was increased as a result of the ACTH injections by percentages ranging between 75 and 400. The uric acid excretion increased 50 to 100%. Whereas intensive administration of ACTH has been reported to induce a negative balance in most normal adult subjects, a positive nitrogen balance was maintained in all periods in these young subjects as long as the full diet was taken, but its magnitude was less during the periods of intensive ACTH administration than during the pre-periods and post-periods. Sodium and chloride showed no significant tendency to increase retention during the ACTH period, but had a fairly marked increase in excretion in the post-period. Potassium showed a small negative balance during the ACTH period but positive balances for the pre-period and the post-period. The potassium and inorganic phosphorus of the blood serum fell as a result of ACTH administration; these decreases were interpreted as an indication of glycogen deposition rather than as being due to increased excretion.

It was concluded that in these children the ACTH, instead of producing a transient state of diabetes mellitus as in the normal subject, appeared to reverse the hypoglycemic tendency, with return of the fasting blood sugar level and the glucose tolerance curve to normal. The eosinophil count returned to normal promptly upon withdrawal of ACTH, but the blood sugar remained above the threshold for hypoglycemic reactions for at least ten days without ACTH in the most severe case in the series. Administration of 18 mg. of ACTH in one dose every forty-eight hours thereafter served to maintain this one-year-old patient in an essentially nonhypoglycemic state for more than three additional weeks. "Results of the study suggest that ACTH may prove to be as effective in the control of this non-Addisonian hypoglycemic disorder as insulin is in the control of diabetes mellitus." 10 references. 1 figure.

Experiences with 116 Juvenile Campers in a New Summer Camp for Diabetic Boys. *J. Gabriele and Alexander Marble, New England Deaconess Hospital, Boston, Mass.* Am. J. M. Sc. 218: 161–71, Aug. 1949.

Experiences with 116 diabetic boys in a summer camp demonstrated again the great value of summer camps as an adjunct in the treatment of diabetic children. The camp provided opportunity for re-evalua-

tion and regulation of the diabetic condition, for the investigation of new and promising therapeutic measures and for education of both children and parents. The boys ranged in age from 3.3 to 16.3 years and the duration of the diabetes was from 0.3 to 12.4 years.

Tests in more than one-third of the boys on admission indicated prior laxity in home treatment. In general health and vigor these boys compared favorably with non-diabetic boys of comparable ages. Almost without exception their heights and weights were greater than standard values for non-diabetic boys of comparable ages. The teeth showed no significant increase in caries over what might be expected among boys in the general population. A study was made of 9 campers with diabetes of seven or more years' duration, and an additional 4 with diabetes of ten or more years' duration. No evidence of arteriosclerosis was found by roentgenographic examinations of the chest, pelvis and legs.

Tests of capillary fragility gave findings within normal limits in all but 7 of 112 campers, but in only 3 was the index appreciably elevated. Serum protein levels were normal. The average value for blood cholesterol was 195 mg. per 100 cc. for 87 campers. In only 5 instances was a value of 250 mg. or greater found. Of the 115 campers receiving insulin, 49 showed atrophy of subcutaneous fat and some 42 showed areas of hypertrophy of fat. Atrophy was most frequent in the lower age groups.

A single daily injection of a new modified protamine insulin (NPH-50, Lilly) gave as good or better control of hyperglycemia and glycosuria with most campers than did a combination of unmodified and protamine zinc insulin given by separate injection. The results with globin insulin with zinc given in combination with unmodified insulin by separate injection were not unfavorable, except that in severe diabetes the length of action of globin insulin with zinc did not extend sufficiently through the twenty-four-hour period to prevent elevation of the fasting blood sugar.

The blood-sugar-lowering effect of physical activity when combined with an adequate amount of insulin was strongly evident. While an active program of athletics was in progress it was possible to give much higher diets and lower doses of insulin and maintain as good or better control of the diabetes. 7 references. 2 tables.

It is unfortunate that well-supervised diabetic camps are so few in number. The well-conducted camp could serve well the practitioner whose facilities for control and for education of his patients are limited. It is hoped that camp facilities may become available throughout the country, and that suitably trained personnel may be obtained for their supervision.

Although not a matter for astonishment, it is disturbing that the prevalent level of diabetic management was as poor as the author's findings indicated. Despite the fact that the patients seemed free from manifest injury from their recurrent glycosuria, it should not be assumed that such levels of "control" are innocuous. When facilities and circumstances permit, the approach to physiologic levels of maintenance of the sugar-handling mechanism is to be desired.—EDITOR.

Diabetes in Childhood. *Eric B. Sims, Adelaide, S. Australia.* Clinical Reports Adelaide Children's Hospital 1: 177–87, May 1949.

The nature, frequency and prognosis of diabetes in childhood as seen in the Adelaide Children's Hospital, and procedures for treatment of the disease and of its complications are presented. The need for a prolonged initial period of equilibration, with the universal use of insulin, is emphasized but the regimen does not call for the use of weighed diets. There are no data relating to late degenerative changes, and the mortality statistics are not encouraging. Out of a total of 53 children treated for the disease between 1924 and 1948, 3 died in coma in the hospital soon after the diagnosis first had been made; another died away from the hospital. Twelve others have died after passing beyond the age scope of the Hospital's care. The author attributes all deaths other than those within the hospital to inadequacy of home care.

A family history was elicited in 33 of the 53 cases. Of these, 14 had a recognized diabetic relative when their disease first was diagnosed. The common acuteness of onset of symptoms is emphasized. Appetite was more frequently impaired than increased. The danger of falsely diagnosing diabetes because of inconsequential reducing tests from the urine is stressed. The author recommends glucose tolerance tests, using 1 Gm. of glucose for each Kg. of body weight, and warns against testing after preliminary starvation or carbohydrate restriction, because of the lessening of tolerance which results from such restriction. He reviews current views of energy metabolism, whereby fat, amino acids and glucose each undergo degradation through the Krebs cycle, thus permitting each to serve as a suitable source of energy.

The author's regimen of insulin therapy during hospitalization is based on 2 doses daily as soon as the approximate total need has been determined. With suitable progress, he discontinues 2 administrations after a few days, giving half or slightly less than half of the total twenty-four-hour requirement as protamine zinc insulin, mixed with the remainder of the required amount in the form of regular insulin, the combination given before breakfast. This type of therapy has prevailed for most patients during recent years; the remainder have had

protamine zinc insulin alone. It is emphasized that spontaneous lessening of insulin need occurs during stabilization, four to six weeks after onset of the therapy. The recommended home dietary is described as "completely normal, unweighed." The outcome from such a regimen has been considered as good. The criterion for adequate control is "a patient who is symptom-free, healthy, happy, growing normally, and free from ketonuria. Glycosuria is kept down to a moderate degree, but no attempt is made to keep the child sugar-free." Avoidance of hypoglycemia through practice of this routine is emphasized. The author disclaims that degenerative changes are related to the strictness of diabetic control, or the severity of the diabetes.

The treatment of diabetic coma consists in administration of 50 units of insulin each hour for several doses, guided by urine tests and, if available, blood sugar estimations. Intravenous administration of normal saline is begun at once, and continued for six hours; the average patient receives from 1 to 3 liters, then a 4% glucose solution containing 0.18% sodium chloride is substituted, and fluid administration is continued until symptoms and signs of ketosis abate.

When patients reach the age of 18 years, weighed diets are recommended, designed to prevent overweight.

Opinion differs in this country as well as elsewhere as to whether it is safe to sanction even mild glycosuria of frequent occurrence in the diabetic patient. Evidence is pointing to the likelihood that laxness in diabetic control is the agent most responsible for degenerative changes in diabetic patients, even though several years may elapse before such changes become apparent. Where it has been possible to maintain physiologic levels of control as the customary state for periods of many years for individual young diabetic patients, the incidence of degenerative changes seen in young adulthood has not been great. Physiologic levels of control imply two factors: assurance that the diet is essentially constant both as to its caloric equivalence and as to its nutritional completeness, and recurrent adjustment of insulin dosage so that normoglycemia is maintained or approximated. With the child patient, it has not been possible to meet these ends through the exclusive use of slow-acting insulin, or with one dose daily. Except for those with low insulin needs, even two daily injections are not enough. It is more difficult for the patient and for the physician to use quantitative methods and to maintain aglycosuria, but logic and long-range findings justify the approach to physiologic levels of management as the proper goal.—Editor.

8. Eye, Ear, Nose and Throat

Retrolental Fibroplasia in Prematurely Born Children. *Anita Peck Gilger, University of Cincinnati Medical School, Cincinnati, Ohio.* Am. J. Ophth. 32: 917–29, July 1949.

A survey for retrolental fibroplasia was made in 229 prematurely born children weighing less than 2,268 Gm. at birth during a five-year period in Cincinnati. No instance of retrolental fibroplasia was found among those weighing above 1,814 Gm. at birth. Among 96 with birth weights of 1,814 Gm. or less, 7 cases or 7.3% were found to have retrolental fibroplasia. The predominance of this eye disturbance in boys over girls was statistically significant.

The following possible etiologic factors were examined: uterine bleeding during pregnancy, age and parity of the mother at delivery, occurrence of virus infections or chronic illness during pregnancy, race, cause of premature onset of labor, associated intracranial disease, administration of vitamin A in early postnatal life, and other factors in early postnatal management and course. The difference in the influence of these factors in affected and nonaffected premature infants was not sufficient to be statistically significant.

A description is given of 3 cases followed from birth until the development of retrolental fibroplasia. External and ophthalmoscopic examinations during the first two weeks of life had revealed no unusual findings. None of the infants had a hyaloid artery or posterior tunica vasculosa lentis or their remnants present after the first two weeks of life. In one infant, the first indication of any abnormality was the development of considerable tortuosity of the retinal vessels. In each case elevation and detachment preceded the development of a retrolental membrane. In two patients, hemorrhages were present on the surface of the detached retina, probably indicating some vascular disorder. After retinal detachment had persisted, the eye became white in appearance instead of gray, as if a little fibrous tissue had developed. The sequence of events in these cases seems to indicate that the retina is primarily rather than secondarily involved in the formation of the membrane. All three had vitreous cloudiness, which may indicate an underlying retinitis or choroiditis. Except after the development of shallow anterior chambers, synechiae and glaucoma, none had injection of the conjunctival vessels or positive aqueous ray. This would seem to indicate the absence of an anterior uveitis. Elongated ciliary processes were seen only after the retrolental membrane was completely developed. 13 references. 9 tables.

The Developmental Aspect of Child Vision. *Arnold Gesell, New Haven, Conn.* J. Pediat. 35: 310–16, Sept. 1949.

Information concerning visual development in the fetus has been obtained by studying viable premature infants. It was found that vision develops very early and has a motor basis. Eye movements occur beneath the fused lids as early as the twelfth week of fetal life and move with increasing coordination for over six months before birth. The fovea is formed four months before birth and the retina assumes the adult form two months before birth. The distance between the fovea and the nerve head remains absolutely fixed regardless of growth of the brain and body. Intrinsic maturation has been found more basic than experience in developing visual behavior. Incipient visual fixation of a near object occurs the first day of life and sustained fixation in the first week. More distant objects are fixed visually at the end of the first month. The fixational response involves the entire action system to a certain extent, visual scope and complexity being indicated by the position of the eyes, head, body and limbs. The visual system becomes more autonomous with increasing maturity but is never entirely independent of the action system. The baby grasps the physical world much earlier visually than manually, fixing a 7 mm. object with his eyes some twenty weeks before he can pick it up with his fingers.

The visual system passes through the developmental stages of infancy, preschool, and school years. Development of the visual function should be examined and supervised throughout these periods without waiting until the child becomes adolescent or grown. Infants indicate their visual individualities in ocular and postural attitudes. Excessive hand regard may indicate a trend toward myopia, whereas delayed hand regard indicates retardation. Even minor complicating clinical conditions may cause temporary or permanent visual defects. For example, strabismus usually indicates a minimal injury which may or may not undergo spontaneous resolution. Infant behavior patterns require systematic examinations during the developmental years by both specialists and educators.

Visual difficulties are more fully expressed during the pre-school years. Serious ineptitudes are revealed in play, use of cup and spoon, etc. Naturalistic observations of spontaneous behavior should both precede and supplement formal visual tests. A tendency to strabismus may be indicated by eye incoordination or by awkwardness. Visually defective individuals soon encounter difficulties in school because their patterns of visual behavior are inadequate for the demands made upon their seeing and interpreting equipment. All children undergo a marked visual reorganization after 5 years of age. It is difficult with our present knowledge to predict probable visual development between 5 and 10 years of age but systematic visual examination and supervi-

sion during preschool years aid in anticipating scholastic difficulties. The pediatrician is in a position to recognize developmental behavior patterns indicative of latent visual difficulties which may require specific guidance or reference to a specialist.

Rhinology in Children, Resumé of and Comments on the Literature for 1948. *D. E. S. Wishart, Toronto, Canada.* Laryngoscope 59: 929–59, Sept. 1949.

The common cold is probably of virus origin so that the prophylactic use of sulfadiazine is unjustified. Administration of oral penicillin in water and on an empty stomach for adequate absorption is recommended. The use of A and B types of influenza vaccines has materially reduced the incidence of influenza. The nasopharynx has been found to be an important entry-point for the cold virus. Vitamins, nasal drops and anti-bacterial drugs are but slightly effective prophylactically but the otolaryngologist can do a great deal to prevent colds and the recurrence of pyogenic complications by removing or changing hyperplastic or chronically infected nasopharyngeal lymphoid nodules by surgery, irradiation or both. Immediate external drainage plus antibiotics have given excellent results and make intranasal instrumentation unnecessary. Routine examinations of specimens of chronic nasal discharges will often reveal *Corynebacterium diphtheriae* and permit virulence tests and early chemotherapeutic treatment.

Many allergic conditions are found in otolaryngology. Eosinophilia is believed by some to be part of the defense mechanism but allergic eosinophilia is extremely variable. Cooperation between the allergist and rhinologist is important in the treatment of nasopharyngeal allergic conditions. Local nasal pathologic changes and mechanical obstructions require surgical correction but treatment should be conservative at first. Nasal roentgen therapy is of doubtful efficacy and ionization is harmful. Some antihistaminics have been quite effective in hay fever and vasomotor rhinitis.

The question of tonsillectomy should be cautiously approached and tonsils and adenoids removed only in properly selected cases. Tonsil tags are more dangerous points of infection than whole tonsils. Enlarged adenoids cause trouble more frequently than enlarged tonsils because they obstruct nasal breathing. Tonsils should only be removed for recurrent attacks of tonsillitis with persistent glandular enlargement in the neck and not merely for enlargement or because they contain purulent-looking material. Adenoids should be removed for slight nasal obstruction, deafness or earache. Nasal breathing should be re-established after adenoidectomy by deep breathing exercises through the nose or the condition will recur. The use of chewing gum tablets containing aspirin after tonsillectomy has not been followed by any specific variation of the prothrombin time but late secon-

dary hemorrhage has occurred in some 10% of cases. The simultaneous administration of vitamin K has prevented salicylate-induced hypoprothrombinemia but the high incidence of secondary tonsillar hemorrhages in these patients is believed to result from some local wound effect. It is concluded that aspirin chewing gum should not be used postoperatively after tonsillectomy. Results of extensive study indicate that, while tonsils should not be indiscriminately removed during a poliomyelitis epidemic, tonsillectomy does not appear to predispose a patient to poliomyelitis.

Fracture is frequent in nasal injuries of children. Early reduction is advisable but hemorrhage and edema may cause delay. Fractures are maintained in position after reduction by internal packing with petrolatum gauze and dental moulding compound externally. Children stand early rhinoplastic procedures well. 48 references.

Retrolental Fibroplasia. Incidence in Different Localities in Recent Years and a Correlation of the Incidence with Treatment Given the Infants. *V. Everett Kinsey and Leona Zacharias, Harvard Medical School, Boston, Mass.* J. A. M. A. 139: 572–78, Feb. 26, 1949.

For this statistical study of retrolental fibroplasia in premature infants under 4 lbs., information was obtained by questionnaire, by ophthalmologic examination when ocular abnormalities were reported, and from hospital records. The data from the Boston Lying-in, Providence Lying-in, and Cincinnati General Hospitals are used in the analyses. The incidence of retrolental fibroplasia in 6 additional regions in the United States and England is tabulated.

This disease is most often associated with prematurity and is usually bilateral. A membrane, frequently vascularized, is found behind the crystalline lens. The membrane appears when the infant is from one to 5 months old. Associated ocular changes include shallow anterior chamber, decrease in size of the eye, and abnormal serration of the ciliary body. Synechiae, glaucoma and iritis are frequent secondary changes.

There has been a significant increase in the incidence of retrolental fibroplasia in certain localities in recent years. In Boston, this increase has been most marked in the 3 to 4-lb. group, the percentage incidence being 0.95 from 1938 to 1942, and 20.2 from 1943 to 1947. The percentage incidence in infants under 3 lbs. was 20.5 and 26.3 in corresponding time intervals.

In an evaluation of possible etiologic factors, the use of water-miscible preparations of vitamins A and D, and iron preparations in increasing amounts correlate statistically with the rising incidence of retrolental fibroplasia. 8 references. 14 tables. 10 figures.—*B. J. Shuman.*

Optimal Methods in the Treatment of Ophthalmia Neonatorum. *Arnold Sorsby and Iris Kane, Royal Eye Hospital, London, England.* Brit. M. J. 2: 562–65, Sept. 10, 1949.

In this study 151 patients with ophthalmia neonatorum were treated with sulfonamides or penicillin or both. Previous studies of patients treated with these drugs showed a percentage between 16.3 and 23.1 of poor response to treatment, as assessed by slow response or relapses.

Bacteriologic studies were carried out with the 151 cases. *Staphylococcus albus* was responsible for 33, *Staphylococcus aureus* for 22, various bacilli, including diphtheroids, for 21, and the gonococcus for 14. Thirty-one had neither organisms nor inclusion bodies, whereas 18 showed no organisms but had inclusion bodies. Inclusion bodies were seen in combination with causal organisms in 25 other cases. Of the whole series, 48 were mild, 78 moderate, and 25 severe. The different grades of severity seemed to be distributed evenly over the whole range of causal organisms.

Significant differences between the percentage of different organisms occurring in groups of patients treated by different methods did not occur, so it is thought that the groups are comparable as regards effects of treatment. Those showing inclusion bodies in the scrape smear tended to have a higher relapse rate after treatment.

Four different methods of treatment were tried: 1) penicillin by mouth or systemically, 200,000 units in 4 doses within twelve hours. Relapse occurred in one-half the patients, and this method was only tried for 26; 2) treatment with oral sulfamezathine, 0.5 Gm. initially followed by 0.25 Gm. six-hourly. This was an increase of about 25% dosage, and was well tolerated. A much higher percentage of cases responded rapidly, 70% as compared with 40%, but the percentage of slow response and relapse cases (17.6%) was much the same; 3) oral sulfamezathine with penicillin drops, 10,000 units crystalline penicillin per ml., used initially at one-minute intervals for thirty minutes, then at five-minute intervals for thirty minutes, half-hourly for six hours and then hourly as needed. Over 70% had a rapid response, but the percentage of relative failures was about 20%; 4) sulfamerazine, 0.5 Gm. initially followed by 0.25 Gm. eight-hourly, gave a rapid response in 21, and a good response in the remaining 3; in the small number of cases in which it was used it was therefore the most satisfactory sulfonamide.

Sulfonamide treatment using sulfamezathine or sulfamerazine seemed the most reliable method and resulted in a high proportion of rapid cures, with a low rate of slow response and relapses in the dosages recommended. 3 references. 6 tables.

Deafness Following Maternal Rubella. *N. E. Murray, Commonwealth Acoustic Laboratory, Commonwealth Department of Health, Sydney, Australia.* M. J. Australia 1: 126–31, Jan. 29, 1949.

Approximately 350 pre-school children whose deafness was due to maternal rubella were measured audiometrically. Of these, 105 were considered as giving the most reliable data with regard to the time and certainty of occurrence of maternal rubella. Measurements in these 105 cases (210 ears) show that the probability of hearing loss is greatest when maternal rubella occurs at about six weeks or three months of pregnancy, corresponding to the development of the cochlea and of the organ of Corti respectively. Hearing loss is generally greatest in the low tones, decreasing on the average about six decibels per octave between 256 and 4096 cycles. The average hearing loss over the speech range in all ears is about 72 decibels, and for the better ears 65 decibels. Deafness is from moderate to severe but not total. 36 references. 5 figures.

9. Gastrointestinal System

Reliability of Roentgen Examination in Hypertrophic Pyloric Stenosis in Infants. *Hans W. Hefke, Milwaukee, Wis.* Radiology 53: 789–92, Dec. 1949.

In 205 cases with the roentgen diagnosis of hypertrophic pyloric stenosis, the reliability of the x-ray examination was found to be 99% at surgery. In only one of 150 clinically suspected of pyloric stenosis, but found normal roentgenologically, was a tumor found by surgery. The pyloric opening time and the pyloric string sign are the most reliable means for the x-ray diagnosis of pyloric stenosis. The roentgen examination is superior to the clinical examination and should be used more extensively, especially in early or doubtful cases. 13 references. —*Author's abstract.*

The Pathogenesis of Fibrocystic Disease of the Pancreas. A Study of 36 Cases with Special Reference to the Pulmonary Lesions. *Wolf W. Zuelzer and William A. Newton, Jr., Children's Hospital of Michigan and Wayne University College of Medicine, Detroit, Michigan.* Pediatrics 4: 53–69, July 1949.

The pathologic lesions and clinical data from 36 fatal cases of fibrocystic disease of the pancreas have been correlated. The sexes were almost evenly distributed. Cases in Negroes were uncommon despite a high percentage of Negroes in the general hospital population, suggesting that the disease is rare in this race. A familial incidence was noted in 7 of the 33 families represented by the 36 patients.

Clinically, 5 of the patients had presented the picture of intestinal obstruction at birth, and died soon after with signs of meconium ileus. All were operated on. In 3, the only abnormalities noted at operation were distention of the small intestine with dark tenacious rubbery meconium, and hypoplasia of the colon. The fourth infant had multiple adhesions between the loops of small bowel, indicating fetal peritonitis. The fifth had organic atresia of the small intestine. Generalized acute peritonitis developed postoperatively in each case. No gross abnormality of the pancreas was recognized. The bile ducts and gallbladder did not appear unusual.

Microscopic examination showed the typical changes in the pancreas, of more severity than seen in patients who died later in infancy. Except in one case, no changes other than those accounted for by aspiration were found in the respiratory tract. The intestinal glands in 4 showed irregular dilatation of the lumens by stringy eosinophilic material and formation of microscopic cysts in the mucosa. In 2, Brunner's glands in the duodenum were moderately dilated and atrophic. In one the gallbladder showed a small cyst in the mucosa filled with stringy mucus-like secretion and lined with flattened epithelial cells. The salivary glands were not examined.

Twenty-eight infants had had symptoms which were predominantly respiratory. The onset of respiratory symptoms had varied from the newborn period to the age of 17 months. Approximately 80% had exhibited such symptoms before the age of 3 months. This early onset of respiratory disease suggests that the involvement of the respiratory tract is an integral part of fibrocystic disease paralleling the process in the pancreas, rather than following it as the result of a nutritional deficiency.

Steatorrhea, indicated by bulky, malodorous stools, was noted in only 13 of these 28 patients and was often intermittent. Most had had a ravenous appetite, yet the nutritional state was poor in all but 4. Body weights tended to be unusually low, but body length as a rule was not impaired. At autopsy gross abnormalities of the pancreas were frequently recognized. Demonstration of the duct of Wirsung was invariably unsuccessful. The microscopic appearance of the pancreas often showed marked variation in the amount of inspissated secretion and the degree of dilatation of ducts and acini from one area to another. These features were usually more marked in the head area. A fair degree of correlation was found between the age of the patient at death and the extent of fibrosis. Mild changes "seem to signify a recent onset of the process. Their occurrence as late as six to eight months would suggest that the disturbance is not always present at birth but may develop in infancy, as postulated by Farber." In one case serial sections were made through the head of the pancreas and an adequate lumen of the duct of Wirsung could be traced from the

duodenal orifice for a distance of approximately 2 cm. The typical picture in the respiratory tract was one of severe obstructive emphysema and atelectasis due to tenacious mucopurulent or rarely mucoid exudate in the air passages of all calibers, usually accompanied by bronchopneumonia, bronchiolectasis and bronchiectasis. Cultures of the lungs yielded coagulase-positive *Staphylococcus aureus* in 22 cases, *Staph. albus, Ps. aeruginosa* and *A. faecalis* in 3 others, and no growth in 3. "The (histologic) observations seemed conclusive evidence that the essential change consists in the production of thick mucus by the bronchial and tracheal glands which accumulates in the air passages and cannot be expelled. This process seems analogous to the disturbance in the pancreas."

Secondary infection seems to supervene and persist in the air passages which are chronically filled with tenacious secretions which cannot be drained adequately. This view is substantiated by the case histories of 3 of the children who died of respiratory obstruction, and at the time of death no trace of pulmonary infection could be found. Squamous cell metaplasia of epithelium was found in the trachea and bronchi in only 15 of the 28 cases comprising the respiratory group, and never outside the respiratory tract. Because the metaplasia was inconstant, never generalized and never found in the absence of infection, it is concluded that this change in patients with pancreatic fibrosis usually arises on the basis of local factors of which chronic inflammation would seem the most important. Changes in other organs considered analogous to those in the pancreas were found in a high percentage of the cases. The gastro-intestinal tract and the biliary system were most commonly involved. There were 3 other infants, all newborns, in whom incipient pancreatic cystic fibrosis was demonstrated.

These observations are interpreted as meaning that the basic pathologic process consists in an anomaly of secretory function which frequently involves other glandular structures besides the pancreas—notably the respiratory tract, the intestinal tract, and the biliary system. Nutritional deficiencies play a secondary although clinically important part in the later evolution of the disease process. 19 references. 13 figures.

Asymptomatic Retention of Pancreatic Secretion. *Maud L. Menten and William C. Kinsey, University of Pittsburgh, Pittsburgh, Pa.* Arch. Path. 47: 90–6, Jan. 1949.

Retention of eosinophilic secretion in the acini of the pancreas is one of the characteristic pathologic lesions of cystic fibrosis of the pancreas. This report deals with the occurrence of apparently asymptomatic pancreatic retention in cases coming to autopsy at the Children's Hospital of Pittsburgh during 1944 to 1947. In 35 (13.7%) of 256 autop-

sies the pancreatic tissues showed, microscopically, a retention of acinous secretion not related to cystic disease of the pancreas and not associated with clinical symptoms. The ages of the patients varied from 10 days to 16 years. Only those pancreata in which the retained secretion was readily discernible were included in the 35 cases. No gross abnormality of the pancreas was described in any of the necropsy protocols.

The retained secretion varied in amount and distribution. The acini involved varied from 10 to 25%. In more than one-half of the affected pancreata not only acini but intralobular and interlobular ducts as well were involved. In the remaining glands the retention was limited almost entirely to the acini and ductules, or to the ductules and ducts. The inspissated material most frequently occurred in the central areas of the lobules. Different lobules varied considerably in the degree of involvement.

In 2 cases with the anatomic diagnosis of biliary cirrhosis and congenital heart disease, respectively, the secretion filling the dilated acini also contained neutrophils. Interlobular fibrosis was a concomitant finding in two other instances. Focal lymphocytosis of the interlobular connective tissue occurred in a case of biliary cirrhosis, and in a case in which death followed subdural hemorrhage and diarrhea. In 17 of 35 there was an accompanying acute bronchitis, occasionally of abscess proportions, with bronchiectasis and patchy bronchopneumonia. Cultures of the lungs revealed a staphylococcus to be the predominating organism in 17 instances, but in only 7 was this *Staphylococcus aureus*. The most pronounced lesions were found in two newborn infants with diarrhea. Baggenstoss, Power and Grindlay likewise observed a high incidence of this lesion in diseases of the intestinal tract. It is suggested that the basis for the perverted secretion may lie in a disturbance of metabolism interfering with proper reparative synthesis of the pancreatic secretion. 7 references. 2 figures. 1 table.

Peptic and Tryptic Capacity of the Digestive Glands in Newborns. A Comparison Between Premature and Full-Term Infants. *Birgitta Werner, Sachs' Hospital for Children and the Caroline Institute, Stockholm, Sweden.* Acta pædiat. 35: 1–80, Supplement 6, 1948.

In order to ascertain the difference between premature and full-term newborn infants in the capacity for proteolytic digestion by stomach and pancreas, clinical and histologic studies were carried out with postmortem tissues procured, as a rule, within the first two hours after death. Most of the infants died within forty-eight hours after birth. No infant who died of a "severe" disease was included. Of the 70 infants, 47 were prematurely born, with birth weights under 2500 Gm.

In 70 infants studied a striking difference was found to occur with

respect to the development and comparative number of the pepsinogen-producing or chief cells. Pepsinogen-containing granules were scanty or nearly absent in all the premature infants, regardless of age or birth weight. Only with infants born during or after the tenth fetal month did there appear basally in the mucosa of the fundic region a marked border of granule-bearing cells. Chemical determination of the pepsin content as measured in 30 experiments with extracts demonstrated a parallel difference between the premature and fullterm groups. These observations corroborate the results of physiologic studies by other workers that the stomachs of premature infants have feeble capacity to digest proteins.

The pancreata of 41 of the cases were examined histologically, with stress laid on the granules of the exocrine cells. In 24 of these the protein-splitting capacity of the pancreatic extract was also determined. The histologic investigations brought to view a marked difference between premature and fullterm pancreatic tissue with respect to the amount of granules in the exocrine cells. It seemed likely that the development of granules takes place more gradually than is the case with the pepsin-producing elements of the gastric mucosa. The amount of zymogen granules was taken to indicate their maturity.

In 24 cases (16 premature) the proteolytic activity of the pancreas was determined chemically. The proteolytic activity of the pancreas of the fullterm infants was considerable (equalling in some cases up to 85% of that of a fullgrown pig) but the pancreas of the premature infants showed little or no activity. These low findings were interpreted as meaning that, in comparison with the fullterm infant, the stomach of the premature infant weighing less than 2000 Gm. at birth must be considered as poorly equipped for the task of protein digestion. 69 references. 14 tables. 49 figures.

Duodenal proteolysis can proceed efficiently in the premature infant, as demonstrated by the next abstract.—EDITOR.

Hirschsprung's Disease and Idiopathic Megacolon. *Martin Bodian, F. Douglas Stephens and B. C. H. Ward, The Hospital for Sick Children, Great Ormond Street, London, England.* Lancet 1: 6, Jan. 1, 1949.

A survey has been made of 73 children having segmental or total dilatation of the large intestine.

Of these cases 39 children, of whom 36 were boys, presented the familiar picture of Hirschsprung's disease. The condition is noted very soon after birth. The passage of the first meconium stool is usually delayed for several days. In severity the constipation varies from one small movement a day to inability to evacuate spontaneously for weeks. Gaseous abdominal distention usually develops within the first

few months. This may be of insidious onset or appear suddenly, presenting the picture of acute intestinal obstruction (seen in 26 of 39 children). The attacks may subside spontaneously but in severe cases passage of a flatus tube, enemas, colon washouts, or even laparotomy may be necessary. Later these infants develop chronic abdominal enlargement, with acute attacks of distention and obstruction superimposed. Abdominal pain is rare. Peristalsis becomes audible, and quantities of flatus are passed per rectum. The stools are small pellets when hard, or thin toothpaste-like ribbons when soft. Fluid feces are ejected at times with great force. Defecation is painless and accompanied by much ineffectual straining, but there is no fecal incontinence. Permanent abdominal enlargement develops later. "Rectal examination reveals a clean anus, a normal sphincter, a well-formed anal canal, a small empty or nearly empty rectum, and perhaps spasm in the region of the upper rectum. The loaded sigmoid colon may be palpable through the rectal wall."

Most forms of treatment were without benefit. General medical measures brought only temporary relief. Spinal anesthetics led to transient improvement in a few. No permanent improvement was obtained with colopexy, sympathectomy, or total or partial colectomy. Colostomy was performed in 8 cases, in 2 as a life-saving emergency measure. All the children improved considerably but symptoms returned after closure of the colostomy. In all the children in this series who have survived, the disease has proceeded to the chronic stage.

In practicaly every child with Hirschsprung's disease radiologic studies with a mineral oil-glycerine emulsion of barium sulfate revealed the rectal segment of the large bowel to be narrow and undilated for a variable distance. Neurohistologic studies were carried out in 15 consecutive instances in which diagnosis was made clinically and radiologically. In every one there was absence of parasympathetic ganglion cells from the intramural plexuses of the narrow intestine and a small adjoining segment of dilated colon. It is suggested that this is the basic lesion in Hirschsprung's disease. The lack of parasympathetic function with unopposed sympathetic activity makes for spasm and incoordination in the distal segment. The colonic obstruction leads to secondary dilatation and hypertrophy of the bowel proximal to it.

Treatment was suggested by similar observations made by Swenson and Bill (1948) at the Boston Children's Hospital. The narrow segment is excised in a four-stage operation. A right-sided transverse spur colostomy is first done, followed in several months by an abdominoperineal rectosigmoidectomy.

There were 34 children with idiopathic megacolon, of whom 25 were boys. Their clinical history differed in many respects from that of Hirschsprung's disease. Constipation was often present in mild form

from birth, but could usually be overcome by mild aperients. Months or years later a more severe type of constipation would develop. Abdominal distention arises less frequently and usually later than in Hirschsprung's disease and fecal masses, as opposed to gaseous accumulations, were more apparent. Vomiting was infrequent. Colic was common and often precipitated by purgatives. The feces were of large diameter, often hard and streaked with blood. Defecation was accompanied by much straining and sometimes pain, so that the child often held back his bowel movements. "Examination of the abdomen reveals many fecal masses and less often gaseous distention. The circumanal region is soiled with feces, the sphincter is normal, the anal canal is short, the rectum is full to capacity with feces, and the rectal walls are flattened against the walls of the bony pelvis."

The children in this group were comparatively fit. The condition seemed to run a benign course, responding to medical measures, with relapses from time to time. A considerable number was cured by repeated regular enemas over several weeks or months. Physical treatment of the constipation led to relaxation of fear of the pain associated with defecation and the overflow incontinence which often followed. On radiologic study with opaque enemas, 22 of the 34 patients showed simple colonic dilatation. They fell roughly into two groups: 1) in 10 the distention was confined to the rectum and distal pelvic colon, forming a "terminal reservoir"; 2) in 12, "tubular dilatation" of a longer segment was noted. The remaining 12 were apparently within the range of normality. The management of these cases embodies the following principles: thorough and repeated evacuation of the bowels, regular treatment with purgatives and education in normal bowel habits. 16 references. 5 figures.

Congenital Reduplication of the Esophagus. Report of a Case. *Ralph C. Frank and Lester Paul, Madison, Wis.* Radiology 53: 417–19, Sept. 1949.

A case of congenital partial reduplication of the esophagus is reported. The patient, a white man, had had intermittent dysphagia since the age of five, stating that solid foods occasionally "stuck" in his throat and had to be regurgitated or dislodged with a rubber tube. Liquids and thoroughly masticated food caused no difficulties. Roentgenologic examinations were performed at the age of 10 and again at the age of 17. Films taken on those occasions demonstrated the two separated patent channels of the mid-esophagus.

Despite frequent references to "doubling" in lists of congenital anomalies of the esophagus, it is pointed out that this is the only case

of its kind ever reported beyond infancy and the only one in which diagnosis was made by x-ray. Only two other cases could be found in the literature, both discovered at autopsy of newborn infants.—*Author's abstract.*

Foreign Bodies in the Esophagus with Symptoms Exclusively from the Air Passages. *H. Fr. Fabritius, Oslo, Norway.* Acta. paediat., Upps. Fasc. 3–4: 335–40, 1949.

The author reports two children in whom large foreign bodies remained undetected in the esophagus for two and one-half and three months, respectively, despite repeated examinations.

Neither of the patients had difficulties in swallowing, but presented symptoms almost exclusively from the respiratory tract (tracheostenosis, bronchitis, bronchopneumonia).

In both cases the foreign bodies were large buttons made from wood, 23 mm. in diameter. Since nearly half of all foreign bodies are not opaque in the roentgenogram, the use of contrast media, as aids in diagnosis should not be forgotten. 5 references.—*Author's abstract.*

10. Genito-urinary System

See Contents for Related Articles

11. Growth, Puberty, Adolescence

Ascorbic Acid Metabolism of Older Adolescents. *A. C. Storvick, R. E. Coffey, M. L. Fincke, B. L. Davey and R. M. Mitchols, Oregon State College, Eugene, Ore.* J. Nutrition 39: 1–11, Sept. 1949.

The recommended allowance of ascorbic acid for adolescents by the National Research Council is 100 mg. for 18-year-old boys and 80 mg. for 16 to 19-year-old girls. In adolescent girls the recommended dosage resulted in a statistically significant decrease in plasma ascorbic acid after a preliminary period of saturation. The mean values ranged from 0.83 to 1.07 mg. %. The same results were seen in 7 boys, with values ranging from 0.67 to 0.9 mg. %. In both groups doses which were 10 mg. less than the recommended allowance were as effective as the higher ones. In all, the blood levels were below saturation on the doses suggested for this age group. 7 references. 1 figure.—*A. M. Bongiovanni.*

12. History, Biography, Antiquities

See Contents for Related Articles

13. Infectious Diseases, Acute

Penicillin Treatment of Carriers of Diphtheria Bacilli. *Gösta Öberg, Stockholm, Sweden.* Acta paediat., Upps. Fasc. 3–4: 204–20, 1949.

A study was made of the effects of penicillin injections on 98 normal or convalescent carriers of diphtheria bacilli; 87 had *mitis*, 1 *intermedius* and 10 *gravis* types. The dosage recommended is 80,000 to 200,000 units 4 times daily for at least ten days. Positive cultures may appear after treatment has stopped. Therefore 4 or 5 successive negative cultures taken at three-day intervals should be obtained before the patient is discharged. Most of the pharyngeal carriers but only 50% of the nasal carriers became free from bacilli following treatment. The author also discusses the problem of isolation and reinfection of carriers. 25 references. 5 tables.

Diphtheria Immunity in High School Students. *E. A. Lane, and W. A. Holla. Westchester County Health Dept., White Plains, N. Y.* New York State J. Med. 49: 2548–49, Nov. 1, 1949.

Of 588 seniors in 9 high schools in Westchester County, New York, 229 (39%) were found to be positive to the Schick test. Of a number having definitely reported initial immunization, 82 had received a "booster" dose and 413 had not; 18 and 41% respectively of these groups had positive reactions.

The data indicate a relatively high susceptibility to diphtheria in this group, and emphasize the need for booster immunization. The lessened opportunity for subclinical infections in a partially immunized community lessens the duration of artificial immunity. Booster injections at intervals of three years during preschool life and early school life might result in an immunity that would carry over into adulthood. 2 references.—*A. M. Bongiovanni.*

Immunization Against Communicable Diseases of Childhood. *Consultation of Experts.* Chron. World Health Organ. 3: 148–53, July 1949.

All children should be inoculated against diphtheria. Alum precipitated toxoid is most suitable for children and toxoid-antitoxin is best for adults. Primary inoculation should be undertaken between 6 to 12 months with at least 2 injections one month apart, and 1 to 2 reinforcing doses in the first five years of life.

Worldwide routine vaccination against pertussis is not recommended until vaccines of uniform protective potency are available. It was decided to seek this end through consideration of strains of organisms used and technics of preparation, preservation and standardization.

Scarlet fever immunization is recommended only for communities highly invaded by this disease. Mumps immunization remains in an experimental stage. The postponement of measles by inducing immunity of limited duration is not advisable. Tetanus vaccination among infants and certain groups such as agricultural workers is recommended, with reinforcement in five to six years. In countries where typhoid is endemic, the use of typhoid-paratyphoid vaccine should be part of the general health program. Combined vaccines are acceptable, presenting as they do the advantage of fewer injections and the achievement of an immunity greater than that by separate injections.—*A. M. Bongiovanni.*

Streptomycin Treatment of Infantile Diarrhoea and Vomiting. *A. Holzel and G. Martim, University of Manchester, and L. Apter, Duchess of York Hospital for Babies, Manchester, England.* Brit. M. J. 2: 454–57, Aug. 27, 1949.

Fifty infants with diarrhea and vomiting were divided into 2 groups, 26 being treated with streptomycin orally and 24 intramuscularly. A third group of 29 similarly sick infants served as controls and received the more customary treatment. Stools from all were cultured before streptomycin was administered and just before and after the end of treatment. *B. coli neopolitanum* was found in 25 of 32 instances where the condition developed after admission to hospital, confirming previous reports of its frequent occurrence in the stools of infants with infectious gastro-enteritis; these were probably a cross infection.

Patients treated with streptomycin orally received 20 mg. per pound of body weight daily, divided into equal doses given at four-hour intervals for five to seven days. Those receiving streptomycin intramuscularly were given 100 mg. every four hours until the treatment was discontinued after four to six days. Total dosage for a single case was rarely more than 3 Gm. Treatment for five to seven days was considered sufficient, and then stopped regardless of results. All patients received fluids intravenously as indicated, whether or not taking streptomycin. Feeding with dilute skimmed lactic acid milk was started after twenty-four to forty-eight hours and concentration of the formula gradually increased as improvement continued. Hartmann's or Darrow's solution was given by mouth during the starvation period. Each patient was clinically classified as mild, moderate or severe in accordance with the amount of dehydration, character of stools, amount of vomiting, and initial loss of weight.

B. coli neopolitanum was found in 76% of severe and 50% of mild and moderate degrees in this series. Death occurred in 42% of the

severe instances infected with this organism but in only 10% of severe cases not having this infection. Presence of this organism would therefore appear to be of prognostic significance.

In this series, 14 of 26 infants treated with oral streptomycin and 10 of 24 infants treated with intramuscular streptomycin improved. On the other hand, 25 of 29 patients given routine treatment without streptomycin improved. Some patients treated with streptomycin showed spectacular improvement and others showed none. The results of this study do not indicate that streptomycin has any specific therapeutic effect in these cases. 11 references. 4 tables.

Reactions to an Influenza Virus Vaccine in Infants and Children. *J. J. Quilligan, Jr., T. Francis, and Elva Minuse, School of Public Health, University of Michigan, Ann Arbor, Mich.* Am. J. Dis. Child., 78: 295–301, Sept. 1949.

Using a vaccine containing the type A PR8 strain of influenza virus, three groups of 30 nonallergic children were given five doses with varying intervals of time between injections. The vaccine used was infected allantoic fluid concentrated by centrifugation. The incidence of reactions was high after the first dose among children given the equivalent of 1 cc. of infected allantoic fluid, some of them quite severe. Few reactions developed in the same children after subsequent doses equivalent to 0.65 cc. Very few reactions occurred among the children given doses equivalent to approximately 0.1 cc. of infected allantoic fluid.

Most commercially available influenza virus vaccines are concentrated and if used in young children the amount of concentration should be taken into consideration in arriving at the proper dosage. It should be noted that the vaccine used in this study contained only a single strain of influenza virus and the reactions encountered were not entirely the same as would be anticipated using the commercial preparations containing more than one strain of influenza virus.

A previous report on this vaccination program demonstrated that adequate antibody levels were elicited when two or three injections were given. It was further shown that the use of the egg vaccine given at intervals of two weeks or two days for a total of five injections did not provoke any evidence of egg sensitization in the 93 nonallergic children tested. 15 references. 1 table.—*Author's abstract.*

Streptomycin Treatment of Septicaemia and Meningitis Due to Intestinal Organisms in Infants. *Robert Debré and Pierre Mozziconacci, University of Paris, Paris, France.* Brit. M. J. 4625: 451–54, Aug. 27, 1949.

The results of the treatment with streptomycin of 16 infants with septicemia and 25 with meningitis are reported. Infections were caused by the Salmonella, Bacillus coli and similar groups. Symptoms of the

septicemia form are chiefly alimentary. Abdominal distention is a prominent symptom. Pyuria, edema of the abdominal wall or genitals, purpura on the abdominal or thoracic walls, fresh blood and mucus in the stools, hepatomegaly or jaundice may be present. Otitis and mastoiditis occurred in 18 patients and is considered by many to be the source of meningeal infection. The meningeal type of disease is much more serious and characterized by extreme latency. Symptoms are those of meningitis. The cerebrospinal fluid is usually purulent and the infecting organism may be recovered but it is occasionally clear, only a lymphocytic reaction and increased protein indicating possible meningitis.

Prompt treatment seems essential to cure. In this series, from 0.05 to 0.1 Gm. (50,000 to 100,000 units) of streptomycin sulfate or hydrochloride per Kg. of body weight were given septicemic patients daily. The drug was given orally in daily dosages of 0.1 to 0.3 Gm. (100,000 to 300,000 units) dissolved in 60 ml. of sweetened water. This amount was divided into 6 doses of 10 ml. each and a dose was given every four hours. This treatment was effective for simple intestinal infections in infants and therefore seemed indicated in septicemia.

Meningeal infections were treated by the intrathecal administration of 0.025 Gm. streptomycin dissolved in 5 ml. of warm physiologic serum twice every twenty-four hours for the first five days and then once daily until treatment is stopped. A similarly diluted intraventricular injection of 0.01 Gm. may be given when necessary, although this route is sometimes dangerous and may cause convulsions. An equal amount of cerebrospinal fluid must be first removed and the injection made slowly. This method should only be used in cases of ventricular infection which do not respond to the subdural injection of streptomycin or in subdural obstruction. Supplementary treatment with Sulfadiazine or penicillin is also sometimes used.

A method of determining the sensitivity of the organisms to streptomycin *in vitro* is described. Twelve of 16 patients with septicemia recovered and 4 died. Only 4 of the 25 patients with meningitis recovered. 6 references. 2 tables.

Mumps Meningoencephalitis With and Without Parotitis. *Lawrence Kilham, Harvard School of Public Health, Boston, Mass.* Am. J. Dis. Child. 78: 324–33, Sept. 1949.

Studies are reported on the clinical and laboratory observations in 25 patients with mumps. Of these, 13 had no parotitis. The laboratory studies comprised cerebrospinal fluid examinations, demonstration of a significant rise of specific antibodies when acute and convalescent phase serums were compared, and isolation of mumps virus from the spinal fluid in 21 patients. Serologic diagnosis was accomplished by means of a relatively simple antihemagglutination test. In some in-

stances, mumps virus was demonstrable in the cerebrospinal fluid as late as the sixth day of encephalitis and occasionally from saliva in patients with meningoencephalitis unaccompanied by enlargement of salivary glands.

The cerebrospinal fluid was characterized by a pronounced pleocytosis, with a high percentage of lymphocytes. The leukocytes exceeded 300 per cu. mm. in 19 instances and were more than 1,000 in 9 cases. No count fell below 100 in the first week of illness, and one reached a peak of 2,920 cells. Every patient showed a 95 or greater percentage of lymphocytes at some time, though a few were as low as 90 per cent. The count tended to reach its high point sometime during the first week of the disease. The total protein was almost always elevated. The protein levels were above 40 mg. per 100 cc. in 16 patients; above 100 mg. in 6, and as high as 253 mg. in one patient on the twelfth day. The maximum values for total protein usually came later than those for leukocytes. Leukocytes and total protein of spinal fluids often persisted at abnormal levels after clinical recovery, in 4 patients for two weeks or more after onset and in one for more than a month. Antihemagglutination and the complement fixation tests, one or both, showed a fourfold or greater increase in antibodies when serums of the acute and convalescent phases were compared. The time at which antibody rises took place varied so greatly from patient to patient as to give no definite indication that one type of antibody rose in titer earlier than the other.

All spinal fluids were subjected to at least three passages in embryonated eggs in order to recover the virus. Strains of virus isolated by egg passage were identified as mumps virus by the antihemagglutination test, using paired serums from patients known to have experienced a rise in mumps antibodies. Six attempts to demonstrate mumps virus directly in the spinal fluid by agglutination of hen erythrocytes were unsuccessful. A serologic test for mumps is recommended whenever appropriate signs and symptoms are associated with a spinal fluid having 150 to 2,500 leukocytes per cu. mm. of which 95 per cent are lymphocytes and elevated protein content, especially with a history of exposure to mumps. These grouped findings are characteristic but not pathognomonic of mumps meningoencephalitis. Full confirmation of mumps meningoencephalitis is believed to rest on 1) abnormal cerebrospinal fluid findings, and 2) a fourfold or greater increase of mumps antibody when serum from the acute phase is compared with specimens taken in convalescence. Successful isolation of mumps virus gives additional confirmation. Abnormalities in the spinal fluid are important, since clinical findings such as drowsiness, headache, nausea and vomiting occur in other conditions apart from a true encephalitis. A high titer of mumps antibody in a single convalescent phase serum may be

misleading. Mumps meningoencephalitis may be prevalent throughout the summer months. There is a suggestion that enlargement of the salivary glands is less frequent at this season. From one patient without any signs of salivary gland enlargement, mumps virus was isolated from the saliva on the second and fourth days of illness. Thus, patients lacking facial swelling may be infectious due to an inapparent parotitis. It is concluded that mumps virus may be one of the most frequent types of encephalitis in certain years. It is suggested that mumps encephalitis can be readily and accurately diagnosed by the simple test of inhibition of hemagglutination test. 13 references. 4 tables.

Prevalence of Poliomyelitis in 1948. *C. C. Dauer, District of Columbia Department of Health, Washington, D. C.* Public Health Rep. 64: 733–40, June 10, 1949.

In 1948 a total of 27,680 cases of poliomyelitis were reported in the United States. This was about 2,000 more than were reported in 1946 and less than the 29,061 cases reported in 1916 by 44 States and the District of Columbia. The morbidity rate was only 18.9% for the country as a whole in 1948. Final figures are not yet available on the number of deaths from poliomyelitis in 1948 for the entire country, but a 10% sample indicates that the figure will be approximately 2,140 or a death rate of about 1.5 per 100,000 population.

The most extensive epidemic area in 1948 was the western North Central part of the country, centering in South Dakota, but also involving adjacent parts of Minnesota, Iowa, and Nebraska. An epidemic area of lesser extent and with lower incidence rates, was in North Carolina and a few adjacent counties in South Carolina, Tennessee, and Virginia. Still other epidemic areas were in New Jersey and Delaware, in Ohio, various parts of Texas, the southern half of California, and Utah. California reported the largest number of cases. 2 tables. 3 figures.

A Disease Resembling Non-Paralytic Poliomyelitis Associated with a Virus Pathogenic for Infant Mice. *Edward C. Curnen, Ernest W. Shaw and Joseph L. Melnick, Yale University, New Haven, Conn.* J. A. M. A. 141: 894–904, Nov. 26, 1949.

The records of 157 patients with a diagnosis of poliomyelitis or aseptic meningitis were studied, comprising virtually all such cases reported in 1948 to the Connecticut and Rhode Island State Departments of Health. Of this number, 44 (28%) were classified as paralytic and 113 (72%) as nonparalytic (including 35 cases called aseptic meningitis.) The frequent occurrence during 1948 in the two states of a mild illness resembling nonparalytic poliomyelitis suggested to the Yale investigators that some of the cases so diagnosed were actually infec-

tions by another agent, perhaps by the new virus. Of these 14 cases of "nonparalytic poliomyelitis" or "aseptic meningitis," 10 showed evidences of an infection with the newly described "C" virus, 2 were instances of true poliomyelitis infection, and no organism responsible for the illness was found in the remaining 2 patients.

The fact that this new virus, infective for infant mice, can cause a disease in man resembling nonparalytic poliomyelitis was substantiated by accidental infection of 3 workers studying the new agent. The virus was recovered from the acute stage stools of all 3 patients. Their blood, which had not shown antibodies against the new virus prior to the illness, had a high neutralizing capacity in the convalescent stage. The clinical features of the disease experienced by the 10 patients are described. All had fever which lasted one to ten days (mean of 5.6 days). Headache, nausea and abdominal pain were common; onset was usually on the first day. Stiff neck or back and vomiting were also common but developed somewhat later. Most of the patients had resistance to forward bending of the neck or back. Seven patients had red inflamed throats. None were not particularly ill or uncomfortable.

Spinal fluid examination was done in all cases, often more than once. No bacteria were found. The cell count was increased in the initial examinations. Protein was moderately elevated in most. Other laboratory tests were normal. The course of the illness was brief and uncomplicated. The patient was hospitalized from 5 to 18 days, averaging 11.3 days. Except for 2 patients with persistent spasm of the neck and back, all had recovered completely by the time of dismissal. There were no clinical or laboratory findings to distinguish this group from other cases of nonparalytic poliomyelitis. The new virus was also recovered from a patient whose illness closely resembled epidemic pleurodynia. His blood developed antibodies against the virus.

The incidence rate of paralytic and nonparalytic poliomyelitis in Connecticut and Rhode Island, together with the recovery of another virus agent among the cases diagnosed as nonparalytic poliomyelitis, suggests that two virus epidemics occurred in this region in the summer and fall of 1948. The classical poliomyelitis virus had its major incidence in the early fall. The infections with the C virus occurred earlier. 8 references. 6 tables. 6 figures.

The Incidence of Poliomyelitis Virus in Cases of Mild Illness During a Severe Urban Epidemic. *Gordon C. Brown, John D. Ainslie and Thomas Francis, Jr., University of Michigan, Ann Arbor, Mich.* Am. J. Hyg. 49: 194–99, March 1949.

A study was made to determine the incidence of unapparent poliomyelitis among cases of mild, nonspecific illness occurring during a severe urban epidemic of infantile paralysis. Stool specimens for

monkey inoculation were collected in Minneapolis during the last week of July 1946, at the height of the epidemic, when 133 cases were reported during a one-week period from that city alone. Stool specimens were collected from three groups of people: 1) 20 patients who had been examined shortly before at the Minneapolis General Hospital for various minor illnesses, and were considered as not suffering from polio; 2) 23 patients in whom minor illness had been recorded by the Visiting Nurses' Association in the three-month period prior to the peak of the epidemic, and who were not seen by a physician; 3) a control group of 22 healthy noncontacts with about the same age distribution as the other two groups, and residing in the neighborhoods of diagnosed cases.

From 7 (35%) of the 20 patients in the first group, the poliomyelitis virus was recovered from the stool. No significant differences in physical findings, spinal fluid, history, etc., could be found between the positive and the negative cases of this group. Virus was recovered from the stool of 7 (30%) of the 23 patients in the second group. There were no discernible differences between the infected and noninfected cases. The average time between the nurses' visits and the stool collection was 38 days for both the infected and noninfected members. Virus was recovered from the stool of 2 (9%) of the 22 healthy controls in the third group. 3 references.

This report adds important information on how extensively poliomyelitis virus is spread during epidemic periods and how frequent are the mild and unapparent infections. In his recent survey of this question, Howe (Am. J. Med., May 1949) now estimates the ratio of clinical to subclinical infections as 1: 100, accounting for the apparent but fallacious discrepancy between the high percentage of immunity in the population after midchildhood and the supposed relative rarity of poliomyelitis.—EDITOR.

Trends in Poliomyelitis. Statistical Bull., Metropolitan Life Insurance Co., 3–5, Aug. 1949.

Poliomyelitis is concentrated at the ages under 15, with the peak rate in the preschool ages. There is some indication of a recent shift in the age distribution of the disease toward the higher childhood ages and of an increase in the proportion of young adults affected. The incidence of poliomyelitis is increasing, but the general trend of the death rate from this disease has been downward over the years. Even in 1948, when the number of cases reported in this country was greater than in any year since 1916, the death rate, 2.4 per 100,000 among insured children, was only one-fifteenth of the all-time high rate of 1916 and less than one-half the 1931 rate. The long-term decline in the death rate from poliomyelitis is largely the result of the reduction in

mortality at ages under 10, particularly among girls. Despite the widespread public interest of poliomyelitis, it remains a relatively uncommon disease. Over the last 20 years in New York City, for example, the disease has been of unusual prevalence only four times—1931, 1935, 1944 and 1949. In the largest of these outbreaks, in 1931 when 4,138 cases were reported, the case rate was only 2.3 per 1,000 at ages under 15. 1 figure.

Differentiation of Types of Poliomyelitis Virus. II. By Reciprocal Vaccination-Immunity Experiments. *Isabel M. Morgan, Johns Hopkins University, Baltimore, Md.* Am. J. Hyg. 49: 225–33, March 1949.

With experimental monkeys, it was noted by utilizing the vaccination-immunity technic that animals vaccinated with live Lansing virus proved immune to challenge by the same virus but succumbed to challenge by a poliomyelitis virus belonging to a different immunologic group. The Brunhilde, Kotter and Frederick strains were identical in their immunologic reactions. Animals immunized by one of the three strains were 100% immune to challenges by the other two strains. The Brunhilde, Kotter, and Frederick viruses thus appear to constitute an immunologic unit. The cross vaccination did not extend to the Lansing strain of virus. The Lansing strain thus represents another immunologic type. 6 references. 6 tables.

Pulmonary Collapse in Pertussis. *David P. Nicholson, County Hospital, Farnborough, Kent, and Brompton Hospital, London, England.* Arch. Dis. Child. 24: 29–40, March 1949.

Because pulmonary collapse appeared to be a common feature in pertussis and bronchiectasis often supervened if reexpansion of the lung did not occur within a year, a series of 44 patients with pertussis were observed in an attempt to follow the respiratory complications of pertussis to resolution or until the changes that had occurred might be considered permanent. The ages ranged from less than 6 months to 8 years. Four deaths occurred; pulmonary collapse was demonstrated at autopsy in 3 of them. Five children, 4 of them under 1 year of age, showed no x-ray abnormality at any time. The other 39 had both clinical and radiographic evidence of abnormality, usually lobar or segmental collapse of the middle and lower lobes of the lungs, at some time during the illness. There was a preponderance of right-over left-sided collapse in the group; the collapse was bilateral in 18 instances. In the cases that were followed until clear or for longer than a year, 35 of 48 collapsed lobes had reexpanded within 9 months; no further reexpansion was seen after 9 months. Thirty-three children were followed for more than one year and 7 still had a collapsed lobe.

That treatment must be started early is substantiated by the observation that only 3 of the 14 patients admitted to hospital in the first week of the disease developed serious pulmonary complications as compared with 19 of the 27 patients admitted after the first week. 113 references. 5 tables. 13 figures.—*M. Maresh.*

Probably the most important supportive procedure in the management of pertussis in young infants is frequent aspiration of the thick tenacious mucus and vomitus from the pharynx. Prevention of pulmonary collapse by this method will save the patients from much subsequent morbidity. Because of the apparently close relationship between pertussis, pulmonary atelectasis and later development of bronchiectasis, proper management of the acute phase of pertussis is of utmost importance.—EDITOR.

Arobon in the Treatment of Infantile Gastro-Enteritis: A Clinical Trial. *David Beynon, Hospital for Sick Children, Great Ormond St., London, England.* Arch. Dis. Child. 24: 41–44, March 1949.

In a study of 25 infants with acute gastro-enteritis, the addition of arobon, a powder prepared from carob beans, did not improve the results of therapy. In patients with parenteral infection, recovery depended chiefly on control of the primary infection. Even though arobon seemed to reduce the number of stools in cases with primary enteric infections, clinical recovery was not hastened. Older infants often disliked the taste of arobon and it aggravated any tendency to vomit. 9 references. 3 tables.

This study confirms previous work which indicates that the final outcome in the treatment of diarrhea is dependent on proper replacement of water and electrolyte and in some cases control of concurrent infections.—EDITOR.

Vaccination as Primary Contact with Influenza A and B Viruses. *Rae V. Nicholas and Werner Henle, The Children's Hospital of Philadelphia, Philadelphia, Pa.* Pediatrics 3: 208–13, Feb. 1949.

A single dose of 0.5 ml. of commercially available influenzal virus vaccine injected into children from 7 weeks to 3 years of age produced antibodies in about 70%. Resulting antibody levels in the children, most of whom were born after the last widespread epidemics of influenza A and B, were distinctly lower than those observed in older individuals who, in all likelihood, had experienced previous contacts with influenzal antigens. The incidence of febrile reactions—all of short duration—exceeded 40%. It seems likely that the booster effect of re-stimulation with small doses of antigen may explain the discrepancies between young children and older individuals in their response to vaccination against influenza. 16 references.

The Pneumonia of Measles. *Louis Weinstein and William Franklin, Massachusetts Memorial Hospitals and Boston University School of Medicine, Boston, Mass.* Am. J. M. Sc. 217: 314–24, March 1949.

Because respiratory tract involvement is frequently present in uncomplicated measles, a diagnosis of pneumonia is occasionally difficult to establish. In 163 cases of rubeola studied, 41 were considered to have pneumonia. These 41 cases included 21 patients with clear-cut radiographic evidence of pulmonary infiltration, 17 with physical signs of pneumonia but with equivocal evidence of hilar or peribronchial infiltration, and 3 which had no roentgenographic examinations but had fever, cyanosis, physical signs of pneumonia, or leukocytosis. Approximately 75% of the pneumonias occurred in children 5 years of age or under; there was no pneumonia in the group 10 or more years of age. A history of previous severe respiratory tract disease was common in the patients with pneumonia. In the majority of instances, pneumonitis appeared early in the eruptive stage, accompanied by higher fever, dyspnea, râles, and usually leukocytosis. Hemolytic *Staphylococcus aureus* was recovered in 25%, and the beta hemolytic streptococcus was found in 17% of nose and throat cultures.

Penicillin, 15,000 to 25,000 units intramuscularly every three hours, produced a rapid fall in temperature and clearing of the abnormal pulmonary signs in most of the children. Streptomycin, 0.125 Gm. intramuscularly every three hours, was used in a few cases and produced complete recovery in a patient with *Hemophilus influenzae* type B pneumonitis and bacteremia which did not respond to penicillin. Despite complications of bacteremia in 2 patients, pleural effusion in 2, and pericardial effusion in one, there were no deaths. 8 references. 6 tables. 3 figures.

Measles Encephalitis. *Emanuel Appelbaum, Vera B. Dolgopol and Joseph Dolgin, The Willard Parker Hospital and the Bureau of Laboratories, New York City Department of Health, N. Y.* Am. J. Dis. Child. 77: 25–48, Jan. 1949.

A summary is given of the clinical and laboratory findings in 74 cases of measles encephalitis seen at the Willard Parker Hospital from 1936 to 1946.

The condition, like measles itself, is primarily a disease of childhood, although persons of any age may be affected. The onset occurs most commonly between the second and sixth day after first appearance of the rash, although it may precede the rash or develop as late as three weeks afterward. High fever, coma, convulsions, drowsiness and irritability are common at the onset. Excitement and delirium are less frequent. On rare occasions the sensorium remains intact and the

main symptoms are weakness and sensory disturbances of the lower extremities, associated with urinary retention. Two such instances of measles myelitis are recorded in this series. The most frequent physical findings in the acute stage are those of meningeal irritation and increased intracranial pressure. Changes in the reflexes are common, especially of the abdominal reflexes. The clinical course is extremely variable. Almost any sign or symptom indicative of involvement of the central nervous system may be encountered.

Histologically the brain lesions are inflammatory in appearance. The early changes are lymphocytic infiltration of the walls of small veins in the gray and white matter of the brain, meningeal cellular infiltration, degeneration of ganglion cells, and microglial proliferation. These may develop before the encephalitis becomes clinically manifest. Perivascular loss of myelin is a later degenerative manifestation which shows up after three days of clinical encephalitis.

The spinal fluid often shows an increased number of cells, predominantly lymphocytes. The protein content is usually elevated. The spinal fluid findings are of no prognostic significance. A normal spinal fluid may occur even in fatal cases.

The prognosis should always be guarded. In this series the mortality rate was 9.5%. An estimated 60% had sequelae of which the most common were psychosis, mental retardation, paralysis and personality deviation. Treatment is entirely symptomatic. Human gamma globulin deserves further therapeutic evaluation. 19 references. 7 figures. 5 tables.

The Changed Status of Diphtheria Immunity. *Philip Cohen, Herman Schneck, Emanuel Dubow and Sidney Q. Cohlan, Beth Israel Hospital, New York, N. Y.* Pediatrics 3: 630–38, May 1949.

For several years the morbidity and mortality rates for diphtheria have been increasing in this and other countries. Since Fraser and Brandon and others have shown that immunity after toxoid injections is effective for only three to five years, repeated injections at such intervals are necessary for the maintenance of effective immunity of the adult population. Of 683 unselected women, 40.1% were positive and 59.9% were negative to the Schick test. Antitoxin titrations demonstrated that Schick-negative patients had 0.01 or more units of this antitoxin in their blood. The Schick-positive reactions had less than this amount, with a few exceptions. Previous childhood immunizations seemed to have no influence upon the percentage of adults yielding a positive Schick test, for the percentage of those previously immunized was the same in both groups. This appears to indicate that childhood immunization must be reinforced periodically until adult life.

It is now unsafe to assume, as in the past, that almost all newborn infants are immune to diphtheria. Although newborn infants whose mothers were Schick-positive usually showed a negative reaction to the Schick test (anergy), they were nevertheless susceptible to diphtheria as was demonstrated by the fact that the antitoxin titer of their serum was less than 0.01 unit per ml. For this reason the authors recommend selective immunization of infants. Diphtheria prophylaxis should be begun at 2 months of age if the maternal Schick test is positive, and at 4 months if the test is negative. At this age the maternal antitoxin transmitted to the baby has usually disappeared from the baby's blood, permitting optimal antitoxin response to the toxoid. Three injections are given at monthly intervals.

Since the newborn is infrequently immune to pertussis and tetanus, combined immunization may be begun at 2 months or 4 months of age, according to the immunologic status of the mother. If the mother is Schick-negative, it may be advisable to begin pertussis immunization at 2 months of age, and at 4 months combine further injections with diphtheria and tetanus, if the last is desired. 47 references. 8 tables.

Epidemic Gastro-Enteritis of Infants in Aberdeen During 1947. *C. Giles, G. Sangster and J. Smith, City Hospital, Aberdeen, Scotland.* Arch. Dis. Child. 24: 45–53, March 1949.

Of a total of 415 infants with gastro-enteritis who came under observation in 1947, a diagnosis of infective gastroenteritis was made in 207. Of these 105, or 50.6%, died. Those most affected were bottle-fed babies under 7 months of age. The peaks of the epidemic occurred in April and July. Institutional outbreaks were a marked feature of the epidemic. Attempts to demonstrate a virus were unsuccessful. No association between Group D streptococci and the disease could be established.

B. neopolitanus was recovered from 94.7% of cases as compared with an incidence of 3.7% in cases of diarrhea attributable to other causes. In November 1947, a second type of coliform organism (the Beta variety) was recovered in 21 of 48 cases of infantile diarrhea, in only 3 of 53 healthy infants, and in one of 74 adult controls. The exact significance of these special types of coliform organisms in the feces has not been determined. 19 references. 5 tables. 2 figures.

The Prevalence of Colds in Nursery School and Non-Nursery School Children. *Isabelle Diehl, Purdue University School of Home Economics, Lafayette, Indiana.* J. Pediat. 34: 52–61, Jan. 1949.

Prevalence of colds at the preschool age level was studied in relation to the variables of nursery school attendance, age, number of people living in the home, diet and weather. The subjects were 25

children attending the Purdue University Nursery school and 26 children not attending nursery school. Both groups were similar in home background, medical supervision and health status.

The number and severity of colds that each child had during the ten weeks from January 28 to April 8, 1946 were recorded by his mother on a check list of cold symptoms. The total cold score was obtained by adding all of the symptoms that were checked during the ten-week period. This score served as a measure of the cold to be related to different variables.

Analysis of the data revealed: 1) there was no statistically reliable difference in the number and severity of the colds suffered by children who attended nursery school and those who did not; 2) various preschool age levels showed similarity in the prevalence of colds; 3) no relationship appeared between the prevalence of colds and the number of people living in the home; 4) children who attended nursery school had a significantly better diet rating than those who did not attend nursery school. All but two of the diet ratings showed adequate or superior nutrition. There was no relationship between the diet rating and the prevalence of colds; 5) colds decreased in prevalence as the weather became warmer. The relation of humidity to colds was not clear cut; 6) the most frequent symptoms of a cold in preschool children were: thin or thick nasal discharge, mild cough, mild loss of appetite, irritability and inactivity. One year later 9 children who had been studied as members of the non-nursery school group attended school. They had no more colds when attending nursery school than when not attending. 11 references. 6 tables. 3 figures.—*Author's abstract.*

Differentiation of Types of Poliomyelitis Viruses. III. The Grouping of 14 Strains into 3 Basic Immunologic Types. *David Bodian, Isabel Morgan and Howard Howe, Johns Hopkins University, Baltimore, Md.* Am. J. Hyg. 49: 234–45, March 1949.

There are three useful methods for determining immunologic interrelationship among the existing strains of polio virus: 1) Monkeys when vaccinated repeatedly with intramuscular injections of small doses of one virus type develop complete immunity to the type. If they do not succumb when "challenged" by inoculation of a different virus, the two viruses are presumed to be related; if not, the second virus is said to belong to a different immunologic type. 2) Monkeys, after infection through the brain with a paralytic dose of one virus type, are challenged when convalescent by inoculation of a test virus. Negative or positive results indicate relationship or non-relationship. 3) The sera of convalescent or vaccinated monkeys can be mixed with a test virus and the mixture introduced into another group of monkeys

for observation of the "neutralizing" effect of the serum. If no paralysis occurs in the animals, the serum has neutralized the test virus, and the test virus is presumed to be related to the one used previously for vaccination or infection of the animals. If the monkeys succumb, the serum has failed to neutralize and the two strains are deemed unlike.

Method #1 was used to study 14 strains of poliomyelitis virus. Two large groups of monkeys were adequately vaccinated with active virus, one group with the Lansing and the other with the Brunhilde strain. Each group was then divided into 13 subgroups of about 5 animals each. Each of the subgroups was challenged by unknown strains. The results indicated that 4 of the 14 strains constituted an immunologically identical type of which Lansing was the prototype; 9 strains formed another immunological type, represented by Brunhilde; and one strain showed an apparent immunological independence from both.

The Lansing type was comprised of the following: the Lansing strain, widely used as a polio strain and first isolated from a patient at Lansing, Michigan in 1937; the Wallingford, isolated in Los Angeles in 1934; the MEF_1, one of the strains isolated during a polio epidemic in the British Middle East Forces at Cairo in 1942; and the MV, or "mixed virus," one of the oldest strains from the Rockefeller Institute. The following strains were found to be immunologically identical with the Brunhilde type: the Brunhilde, or severely paralyzing strain recovered from a Baltimore epidemic in 1939; the Kotter, a mild strain first isolated from a human stool sample in an Illinois epidemic in 1942; the Frederick, isolated from a pool of throat swabs collected in Baltimore in 1944; the Minnesota, isolated from a patient in the Minnesota epidemic of 1946; the Per, isolated from a West Virginia outbreak in 1940; the Riley, recovered from a stool sample collected at Chicago in 1943; the Sudeck and the Beich, both isolated in Baltimore from stool samples collected in 1941; the MEF_2, another strain from Cairo isolated during World War II. There was considerable difference among these strains in the matters of virulence, incubation period, and primary site of paralysis. For example, the Brunhilde was highly infective with a short incubation period, while the Kotter and the Frederick had delayed onset and produced mild symptoms. By using smaller amounts of "challenge" inoculation there may yet be revealed immunological sub-types within this inclusive group. The one strain which was immunologically incompatible was the Leon, isolated in Los Angeles in 1937.

Encephalopathy Following Pertussis Vaccine Prophylaxis. *Joseph H. Globus and Jerome L. Kohn, Mt. Sinai Hospital, New York, N. Y.* J. A. M. A. 141: 507–09, Oct. 22, 1949.

Two infants are described (aged 8 and 9 months) in whom manifestations of cerebral involvement followed inoculation with pertussis vaccine. In one instance the reaction was at least partly reversible, but in the other it terminated fatally. In the latter instance the autopsy revealed anatomic changes of a diffuse primary, degenerative nature in the brain. These histologic features, non-inflammatory in character, suggest that an allergic form of encephalopathy was caused by an antigen-antibody reaction.

One infant's symptoms followed the second injection of fluid vaccine. The other's symptoms followed the second injection of pertussis antigen (a detoxified formalized filtrate). The first injection had been given 6 weeks earlier, after which there had been a rise in temperature and irritability which lasted for 2 weeks. Nevertheless, a second injection of the same vaccine was given to the child on the day preceding admission to the hospital; he died a month later in stupor. 6 references.

Reinfection Experiments in Monkeys (second attacks). *David Bodian, Johns Hopkins University, Baltimore, Md.* Am. J. Hyg. 49: 200–18, March 1949.

Four groups of monkeys were inoculated with poliomyelitis virus, each group with a different strain. The convalescent animals of each group were divided into four subgroups, each of which received a reinfecting dose in the brain with one of the four strains originally used. Thus every monkey in the experiment had two contacts with virus, some receiving the same strain of virus for both tests, while the others received another strain for their second trials.

Four strains of virus were used: the Lansing, Brunhilde, Frederick, and Kotter strains. The last three were found to belong to an identical immunologic type (called for brevity B-F-K), while the Lansing belonged to an independent type. The second injection regularly failed to produce a second episode of poliomyelitis in monkeys challenged by the same immunologic type of virus as the one used in the initial infection. When an unrelated type of virus was injected a total of 50 per cent successful second attacks was recorded, regardless of whether the challenge dose was large or small. Moreover, the clinical symptoms (degree of paralysis, etc.) were invariably milder in the second attack as compared to the first, and the incubation period was significantly prolonged.

These results were interpreted to indicate that infection with one immunologic type of polio virus does not protect from subsequent infection with another unrelated type. Nevertheless, the initial attack appeared to confer some degree of cross-immunity to the monkeys when infected with an immunologically different type. 31 references. 7 tables.

Muscle Action Potentials in Human Poliomyelitis Before and After Closed Manual Neurotripsy. *Robert Hodes, University of Pennsylvania Medical School, Philadelphia, Pa.* J. Applied Physiol. 1: 790–801, May 1949.

Neurotripsy (nerve-crushing) is an operation designed to increase the power and effectiveness of partially denervated and paralyzed muscles. The principle may be stated simply as follows: Once a peripheral nerve is cut or crushed, its regeneration may be attended by an excessive profusion of nerve fibers at the injured end. In consequence, the paretic muscle may become stronger than before since each nerve cell becomes theoretically able to provide innervation to muscle cells formerly devoid of nerve supply. During the war, Billig applied this principle in an attempt to increase the muscle power of patients in late stages of poliomyelitis with partially paralyzed limbs. He reported some excellent results. He used the so-called "closed manual neurotripsy" technic in which the muscle with its remaining intact nerve fibers was kneaded from outside with repeated blows through the skin. After a few months the muscle was reported to have a greater power than before the operation.

A study is reported of 20 patients who received the Billig type of neurotripsy. These were chronic cases of poliomyelitis wherein no change was shown in muscle power for at least one year and in most of them for many years, despite the usual courses of physical therapy. All 20 received electromyographic examinations one or more times before the operation, to establish base line values. Postoperative readings were made at intervals of 1 to nearly 18 months after neurotripsy. A final analysis of the results showed that muscles which had registered no electric activity before the operation remained unimproved as late as 18 months afterwards. In contrast, muscles which registered some electrical activity before operation were found to have increased activity beginning a few months after operation. An additional observation, confirming that of Billig, was that neighboring muscles unintentionally involved in the operation underwent changes in their electromyograms closely resembling those of the target muscles. 7 references. 6 figures.

These experiments indicate that neurotripsy is of limited although positive value in the treatment of certain cases of poliomyelitis with residual paralysis. In this series, the improvement noted was in

patients who had already received adequate physical therapy for at least a year, or more often, and whose recovery with these methods had apparently ceased. Many of these patients also had secondary muscle changes, such as atrophy and contractures. Neurotripsy is worthy of further careful study as a technic of rehabilitation.—EDITOR.

Fever (Rickettsia Burneti) in Children (*A propos de la fièvre Q [Rickettsia Burneti] chez l'enfant*). *François Thelin and Arthur Vogt, Geneva, Switzerland.* Arch. franç. pédiat. 6: 474–76, Sept.–Oct. 1949.

Since 1947 several small epidemics of Q fever have been reported in Switzerland; as a rule children were not affected, but 1 case was reported by Gsell in a girl two and a half years of age whose parents also had the disease. The authors report 2 cases in children (sisters). The first patient six and a half years old, complained of headache and stiffness of the neck. On admission to the hospital she was febrile, and although stiffness of the neck was present, Kernig's sign was negative. While there were few respiratory symptoms, radiological examination showed some pulmonary involvement. In the second case, the chief symptoms were fever, fatigue and a cough; the pulmonary involvement was more extensive than in the first case. The diagnosis was established in both cases by a positive complement-fixation test. Both patients recovered. Neither patient showed any skin eruption, a symptom that occurs frequently in other rickettsial disease, but not in Q fever. The possibility of Q fever should be considered in children showing atypical symptoms of pulmonary or meningeal involvement, and serological tests made. 16 references.

Roseola Infantum. An Outbreak in a Maternity Hospital. *Ursula James and A. Freier, General Lying In Hospital, London, England.* Arch. Dis. Child. 24: 54–58, March 1949.

An epidemic of roseola infantum in a maternity hospital is described. The outbreak lasted 6 weeks. The diagnosis was definitely established in sixteen of 144 babies in the hospital. All the infants were on the same floor of the hospital. All were breast fed. The age at onset was 8 to 12 days. Five nurses working on the affected floor developed characteristic symptoms. A similar illness appeared in 6 mothers and 4 fathers. The onset in all mothers was within 2 weeks of the appearance of the roseola in their infants.

The clinical manifestations in the infants were high fever, rash, and glandular enlargement with little or no constitutional upset. A few infants had signs of lung irritation for 12 to 24 hours, and a few had an injected pharynx. Leukopenia and neutropenia were usually present. Four infants had transient mild pyuria. Of the adults who developed

the disease, nearly all had pyrexia, severe retro-orbital headache, photophobia and general malaise. One developed neck rigidity and a doubtfully positive Kernig's sign with normal cerebrospinal fluid. After several days the fever subsided, to be followed by the appearance of a macular rash. 2 references. 1 table. 3 figures.

Outbreaks of roseola infantum have been described many times, but it is unusual to find so many adults affected.—EDITOR.

Roseola Infantum (Exanthema Subitum). *D. C. Jackson, Honorary Assistant Physician, Mater Misericordiae Children's Hospital, Brisbane, Australia.* M. J. Australia 2: 52–55, July 9, 1949.

Between September and December 1948 (in the spring and early summer) a number of cases of roseola infantum were encountered in Brisbane where the condition had not previously been recognized. Roseola infantum occurs almost exclusively in infants under the age of 2½ years. A sudden and unexplained fever of 102°–103° F. marks the onset, and persists for 2 to 5 days. The temperature then falls suddenly. After it has returned to normal a rash, closely resembling that of rubella, appears over most of the body. There seems to be absence of symptoms during the febrile and eruptive stages, but some cases may have convulsions and a tense fontanelle and simulate meningitis. A constant finding is the presence of leukopenia with relative lymphocytosis. At times the occipital lymph nodes are enlarged. Diagnosis is difficult in the pre-eruptive stage. After the appearance of the rash, confusion is most likely with measles or rubella. The time relation of fever and rash is distinctive.

Five case reports are given. Two of these, a girl of 9 months and a boy of 7 months, had bulging fontanelles suggestive of meningitis. Lumbar puncture in each case yielded a completely normal fluid. One of these children had a convulsive seizure at the time of the crisis, which is unusual. The other had severe convulsions at the onset. Both cases had the typical leukopenia with relative lymphocytosis. The third case was a girl of 6 years. Relatively few cases in children over the age of 4 have been reported. In this patient the initial high fever was accompanied by severe headache and right-sided abdominal pain which brought her to the hospital with a tentative diagnosis of appendicitis. The blood count, however, showed leukopenia with relative lymphocytosis. The temperature fell to normal on the sixth day, and the typical rash of roseola infantum appeared on the seventh day. 5 references.

Studies in the Relation of the Hemolytic Streptococcus to Rheumatic Fever. V. Streptococcal Anti-Hyaluronidase (Mucin-Clot Prevention) Titers in the Sera of Patients with Rheumatic Fever, Streptococcal Infection, and Others. *T. N. Harris, Susanna Harris, Ph.D., Children's Hospital of Philadelphia, Philadelphia, Pa.* Am. J. M. Sc. 217: 174–86, Feb. 1949.

As part of a systematic investigation into the relationship of various portions and products of the hemolytic streptococcus to rheumatic fever, a study was made of the streptococcal anti-hyaluronidase titers in the sera of patients with rheumatic fever, streptococcal infections and other conditions. The mucin-clot prevention test was employed. The titration of hyaluronidase preparations by this method was found to compare favorably with the titration of the same material in actual spreading effect in the skin. The specificity of this test for the detection of antibodies derived from the enzyme of streptococcal origin was confirmed by comparative tests with pneumococcal, clostridial and testicular hyaluronidase.

Anti-hyaluronidase titers in the sera of normal human beings were found to vary considerably with age, just as do the antibody titers derived from other streptococcal antigens. In the newborn period the antibody levels were similar to those found in young adults since they are of transplacental origin. Titers found in the age group 6 months to 3 years had a much lower mean value, indicating that at this age level fewer natural contacts with the hemolytic streptococcus had occurred. The sera of children of slightly older ages, 3 to 12 years, showed more antibodies to streptococcal hyaluronidase and approached more closely the titers found in young adults. The mean titers were 46 in neonatal infants, less than 8 in infants, 36 in children, and 30 in young adults.

Anti-hyaluronidase titers were run on a series of children 3 weeks after the onset of scarlet fever. The mean anti-hyaluronidase titer in 130 individuals was found to be 73 at the third week after the onset of the illness, in comparison with 20 during the first few days. In some children the titer continued to rise after the 3rd week.

When the sera of children with acute and quiescent rheumatic fever were tested, a significant disparity was observed between the mean titers of these two groups. In patients with quiescent rheumatic fever the findings were comparable to those in normal children. In 100 patients with acute rheumatic fever, the geometric mean titer was 580. Eighty-four per cent of the values in the acute group were higher than any found among the quiescent rheumatic patients, and higher than 98% of the children in the normal control group. The mean titer in active rheumatic fever was eight times as high as in children 3 weeks after the onset of scarlet fever. The significantly higher anti-hyaluronidase titers in children with acute rheumatic fever suggest the possibility

of using this test in the laboratory diagnosis of rheumatic fever, either alone or in combination with other anti-streptococcal antibody determinations. 17 references. 2 figures. 4 tables.—*S. Friedman.*

This test promises to be useful as an adjuvant in the recognition of the existence of activity of the rheumatic fever in questionable cases. More will undoubtedly be heard about it.—EDITOR.

Sporadic Salmonella Infections in Shanghai During the Summer of 1948. *J. Fournier and Ma Koei Tuo, Institut Pasteur de Changhai, Shangai.* Chinese Med. J. 67: 16–18, Jan. 1949.

Five patients with Salmonella infections are reported, 3 with enteric and 2 with systemic infections. The former were due to *S. aberdeen, S. typhi murium* and *S. anatum* respectively, with one death of a 6-month-old infant from *S. anatum* infection. Maculopapular eruption was found in a male infant of 3 months with *S. typhi murium* infection. The systemic cases (both fatal) were a new-born infant with deep abscesses in the buttocks and purulent meningitis caused by *C. blegdeu*, and an older boy with *S. cholerae* suis-Kunzendorf septicemia. 20 references.—*C. L. Kao.*

Cerebral Symptoms and Aphthous Stomatitis in a Series of Endemically Occurring Morbid Cases. *W. Goudsmit, Winsum, Netherlands.* Nederl. tijdschr. v. geneesk 93: 255, Jan. 22, 1949.

In a small village 9 children fell acutely ill with severe headache, some psychical deviations, drowsiness and vomiting; they had fever, redness of the skin, pain in the mouth and throat. Most of them had a distinct aphthous stomatitis. Two of the children were hospitalized with the diagnosis of encephalitis, but in only one did the cerebrospinal fluid show abnormalities. All children recovered by the end of one week.—*Ph. Arons.*

Treatment of Paratyphoid B Infections in Infants and Young Children with Chloromycetin (*Le traitement de la para B du nourrisson et du jeune infant par la chloromycétine*). *E. Planson, Dijon, France.* Presse méd. 57: 1083–84, Nov. 26, 1949.

Twelve cases are reported of paratyphoid B infection in infants and young children, 1½ months to 4 years of age. Four were not treated with chloromycetin, and 2 of these children died; the other 2 recovered after a long illness. All of the children treated with chloromycetin recovered and the duration of the disease was much reduced. The temperature fell within 48 hours, and other symptoms showed rapid improvement. Chloromycetin was given by mouth in water without sweetening; 1 Gm. was the initial dose followed by a daily dosage of 0.75 Gm. in three divided doses for 4 to 5 days. This dosage was gener-

ally well tolerated, although often causing some nausea at the beginning of treatment. In some cases, a skin eruption of short duration was noted after treatment was completed. Three illustrative cases are reported. 6 references. 3 figures (graphs).

Treatment of Typhoid Fever with Chloromycetin. Results in Four Cases and in a Chronic Carrier.* *Harvey S. Collins and Maxwell Finland, Boston, Mass.* New England J. Med. 241: 556–61, Oct. 13, 1949.

The effects of chloromycetin (chloramphenicol) on the clinical course and laboratory findings in 4 patients with typhoid fever are presented. Clinical improvement and defervescence began in each case on the third day after treatment was initiated and was complete after about a week of therapy. One of the patients had a relapse with bacteremia after the temperature had been normal for 2 weeks. A second patient continued to shed typhoid bacilli in the stools throughout 3 weeks of chloromycetin administration and again during convalescence.

Chloromycetin given in doses of 2 Gm. a day for 2 weeks failed to cure a chronic typhoid carrier whose gallbladder had previously been removed. 10 references. 4 figures.—*Author's abstract.*

Virus Diseases Affecting the Skin. A Summary of Recent Advances. *Harvey Blank, School of Medicine, University of Pennsylvania, and the Children's Hospital of Philadelphia, Philadelphia, Pa.* Acta dermat.-venereol. 29: 77–107, Fasc. 1, 1949.

The progress in those virus diseases of particular interest to the dermatologist are reviewed: herpes simplex, molluscum contagiosum, verruca, herpes zoster, ecthyma contagiosum and milkers' nodules. Primary herpes simplex is clearly an infection, with recurrent lesions produced by activating the virus from its latent state. The herpes simplex virus is approximately 0.15 microns in diameter; it can be grown readily in many laboratory animals and in embryonated hen's eggs. The primary attack in man is usually manifested as an acute ulcerative gingivostomatitis during early childhood which persists for ten to fourteen days. Primary infection may also occur in the genital mucous membrane, as a vulvovaginitis, or as an infection of an antecedent eczema. With many individuals the virus must enter the body through inapparent infection, about which very little is known. Once the virus has gained entry into the body, it probably persists throughout life. The embryonated hen's egg has proved helpful in isolating virus directly from patients, and in permitting experimental studies on immunity and other phases of the disease. The injected amniotic fluid is a

* Provided through the courtesy of Dr. E. A. Sharp, of Parke, Davis and Company, Detroit, Michigan.

relatively pure and potent source of virus; after inactivation this material can be used as a skin test antigen.

No drug has yet been found which is effective in treatment of either primary or recurrent herpes simplex. At present, repeated vaccinations with calf lymph virus of vaccinia is in general favor, although it often fails to stop recurrent lesions.

Measures designed to raise the level of circulating antibodies through immunizing procedures, such as injections of virus vaccines, are not helpful because patients who are subject to recurrent herpetic infection all have a high titer of neutralizing antibodies in their blood. In the young child with severe systemic disturbance in the primary attack, treatment of dehydration is of special importance. Wet dressings or other applications as indicated for the varicelliform eruption and mild cleansing procedures for the mucous membrane lesions can be used. Aqueous solutions of the quaternary ammonium compounds, such as Zephiran 1–1000 (benzalkonium chloride) or Ceepryn 1–4000 (cetylpyridium chloride) have a virucidal as well as detergent action, and have proved useful. Penicillin should be given for pyogenic or fusospirochetal secondary infection. The other virus diseases of the skin similarly share the same general features of infectiousness, antibody response, cellular changes, and resistance to therapy as do virus diseases of other tissues. 105 references. 14 figures.

High Flying and Decompression Treatment of Whooping Cough. *H. Stanley Banks, Park Hospital, Hither Green.* Brit. M. J. 2: 226–27, July 23, 1949.

The chief claims which have been made for decompression treatment of whooping cough are: The treatment applied after the end of the third week of the disease results in marked improvement within a week in at least 30% of cases. A considerable proportion show dramatic improvement or virtual cessation of the cough within 4 days. The treatment is only applicable to uncomplicated cases, with no fever or cyanosis. Repetition of the treatment does not increase the percentage of success. The factor involved appears to be the rarefied air pressure equivalent to a height of 10,000 to 12,000 feet applied for a period of about 45 minutes. Of 22 cases treated so far by the author, 4 were dramatically improved within 4 days, and 3 others within 7 days.

14. Infectious Diseases, Chronic

Cerebral Edema Complicating Active Rheumatic Heart Disease in a Child. *Irving Kowaloff, Forest Hills, N. Y.* New York State J. Med. 49: 2183–2185, Sept. 15, 1949.

In a boy with active rheumatic heart disease, manifestations of increased intracranial tension appeared as a late complication and contributed to death. The child began to suffer from attacks of rheumatic fever at the age of seven. In the course of the disease he developed mitral insufficiency, mitral stenosis, and aortic insufficiency. His final hospitalization occurred at the age of twelve. At this time he was treated for active rheumatic fever with congestive heart failure, complicated by bronchopneumonia. Treatment with salicylates, digitalis, oxygen, mercupurin and penicillin was effective and the patient remained improved for a period of 4 weeks. About 3 days before his death he again exhibited increasing congestive heart failure. In the morning of the day before his death he became extremely restless and apprehensive, screaming repeatedly without apparent cause. His blood pressure rose from 140 systolic to 180 systolic. A phlebotomy, in which 250 cc. of blood were removed, failed to reduce the blood pressure. The congestive heart failure became progressively worse and did not respond to parenteral administration of aminophylline (0.25 Gm.), mercupurin (1 cc.), and morphine (0.005 Gm.). In the afternoon the child became semicomatose and his pupils pin-point in size. In the evening the temperature began to rise abruptly and reached 105.8° F. (41° C.) the following morning, when he expired.

At necropsy the heart was found diffusely involved with the lesions from rheumatic fever. The meninges contained markedly engorged blood vessels. The general cyto-architecture of the brain was well maintained. The striking picture in all sections was pericellular and perivascular edema. An occasional cell showed karyolysis. There was no evidence of cellular inflammatory reaction in the meninges and substance of the brain or of endarteritic changes in their blood vessels. To the edema compressing the neurons of the cerebral cortex, the vasomotor and thermal centers of the brain stem was ascribed the terminal elevation of blood pressure, hyperthermia, delirium and loss of consciousness. In addition, a vicious cycle was believed to have been set up. Cardiac decompensation caused cerebral edema and this cerebral edema by elevating the blood pressure, in turn increased cardiac decompensation. 8 references.—*Author's abstract.*

Edema of the brain is a common finding in children dying from generalized infections and after disturbances which can give rise to a shock-like syndrome. Most of such patients have an elevated blood pressure. Perhaps this patient had a generalized vasoconstriction, much as nephritic patients do.—Editor.

Penicillin Syphilotherapy Administered Prior to Pregnancy. A Study of 111 Pregnancies During Which Additional Antisyphilitic Treatment Was Withheld. *H. A. Tucker, Johns Hopkins School of Medicine, Baltimore, Md.* Am. J. Syph., Gonor. & Ven. Dis. 33: 1–7, Jan. 1949.

Results are reported of 111 pregnancies in which syphilotherapy was withheld during pregnancy. All had received penicillin treatment prior to pregnancy, the dosage schedule being approximately 3 million units or more of aqueous penicillin divided into 2 or 3 hourly intramuscular injections and given over a period of 7.5 to 15 days. Only one congenital syphilitic infant resulted, and this from an uncooperative mother who thwarted optimal treatment. It is concluded that adequately treated syphilitic women can be assured of having non-infected offspring on subsequent pregnancies without further treatment. 6 references. 1 table.—*C. Whitlock, Jr.*

Bronchoscopic Studies in Primary Tuberculosis in Childhood. *James H. Hutchison, University of Glasgow, and the Royal Hospital for Sick Children, Glasgow, Scotland.* Quart. J. Med. 18: 21–50, Jan. 1949.

The pathogenesis of the sharply delineated transient shadows seen in the radiographs of children with primary tuberculosis has not been determined. Three explanations have been offered. These shadows have been considered to be the result of a non-tuberculous pneumonia. They have been thought, also, to represent actual tuberculous infiltration. The present investigation has attempted to prove the third hypothesis, that the shadows represent atelectasis secondary to bronchial obstruction by tuberculous bronchopulmonary lymph nodes. Bronchoscopic studies were carried out in 28 cases of active primary pulmonary tuberculosis and 2 cases of healed primary tuberculosis. Of the 28 children with active disease, 18 had sharply outlined radiographic shadows of lobar or segmental distribution but without mediastinal or tracheal displacement. The other 10 had similar shadows with the presence of tracheal or mediastinal shift. Obstructive emphysema was an associated finding in 2 cases. Bronchoscopy of these 28 cases revealed 9 with marked bronchial narrowing from extrinsic pressure by tuberculous bronchopulmonary lymph nodes. In 5 of these the lymph nodes had eroded through the bronchial wall but the mucous membrane was intact. In 12 children the mucous membrane was ulcerated and granulation tissue from extrinsic lymph nodes protruded into the bronchial lumen. Two children with healed primary tuberculosis had evidence of bronchial fibro-stenosis with bronchiectasis as a sequel. This bronchoscopy failed to reveal evidence of obstruction in only 2 of the 30 patients. 66 references. 2 tables. 6 figures.—*R. E. Cooke.*

BCG Vaccination in Chicago. *Robert A. Black, Loyola University, Chicago, Ill.* Am. J. Dis. Child. 77: 381–88, March 1949.

In a 13-year study, BCG was given to a group of newborn infants originating from a highly infected section of the population. No known cases of tuberculosis were present in the immediate households. Over a ten-year period 1417 newborns were vaccinated and 1414 were used as controls. Eleven of the vaccinated group developed demonstrable x-ray evidence of tuberculosis, with one death resulting from tuberculosis. In the control group thirty-nine children had x-ray evidence of tuberculosis and seven died. In another group of children with tuberculosis in the immediate family, the children in the control and vaccinated groups were isolated in foster homes. Among 151 vaccinated infants there were only 2 cases of tuberculosis and no deaths. The control group of 105 children contained 5 cases, with 4 deaths. Alternate children under the age of ten in a third group who were negative to tuberculin were vaccinated with BCG. Of 699 children vaccinated none developed tuberculosis over a 5-year period. Among the 625 controls 4 developed tuberculosis, 275 developed positive reactions to tuberculin, and 1 died. The use of BCG vaccine is without harm and is of value, especially in the sections of population in which the incidence of tuberculosis is high. A plan is suggested for the application of a vaccination program. 9 references.

Bleeding of the Nose as a Sign of Rheumatic fever. (*Epistaxis als Accessoir Symptoom van Rheumatismus Verus*). *J. I. Keyzer, Tilburg, The Netherlands.* Maandschrift voor Kindergeneeskunde 17: 254–57, 1949.

Attention is drawn to the fact that heavy epistaxis proved to be the first sign of relapsing rheumatic fever in five children.—*F. Kuipers.*

B.C.G. Vaccination Against Tuberculosis. *E. A. North, Melbourne, Australia.* M. J. Australia 2: 161–64, July 30, 1949.

B.C.G. vaccination is safe. Evidence for its efficiency rests on results of animal experiments, on clinical experience, especially in Scandinavia, and on controlled human studies. The latter include Heimbeck's and Ferguson's work on student nurses with significant reduction of morbidity in those immunized, several studies on infants and young children, and Aronson's conclusive results in young American Indians (6 deaths in 1,550 vaccinated as against 53 in 1,457 strictly comparable nonvaccinated controls followed up for 9 years). The following procedure for immunization, based on personal observation in B.C.G. clinics and laboratories in Western Europe and North America, is recommended.

1) Vaccinators should receive special training.

2) Groups most needing vaccination are those living or working in a potentially highly infected environment, especially infants and young adults.

3) Vaccination should be confined to those who are Mantoux-negative (with 10 T.U.).

4) Criterion of successful vaccination is conversion to Mantoux-positive status (with 10 T.U.) 6 to 8 weeks later.

5) Intradermal injection of vaccine is the method most favored in Scandinavia, and complications are quite rare with careful technic and good vaccine.

6) Careful follow-up with proper record cards is necessary.

7) It is essential with infants to break contact with source of infection prior to vaccination and until they are Mantoux-positive.

8) Other preventive methods must not be neglected. B.C.G. is only an additional weapon.—*Author's abstract.*

Differential Diagnosis of Tuberculous Meningitis and the Meningeal Type of Poliomyelitis (*Zur Differentiadiagnose zwischen Meningitis tuberculosa und der meningealen Form der Poliomyelitis*). *Arno Holen, Berlin.* Ther. Gegenwart 12: 369–70, 1949.

The discussion regarding the differential diagnosis between tuberculous meningitis and the meningeal forms of poliomyelitis is based on four facts, namely, 1) the gradual change of poliomyelitis from a disease affecting only children to a condition affecting also a large number of adults, and the increased incidence of so-called meningeal (aparetic) and polio encephalitic types; 2) the increasing endemic incidence of poliomyelitis in Germany; 3) the relatively high saturation of the German population with tuberculosis, leading to an increase in the incidence of tuberculous meningitis, and 4) the fact that tuberculous meningitis is no longer a fatal disease, but one which responds to streptomycin, administered in the early stages before the development of internal hydrocephalus or meningeal encephalitis. In contradistinction to the meningeal form of poliomyelitis, tuberculous meningitis does not run a diphasic course; the tuberculin reaction is positive. The onset is more insidious and the sugar of the cerebrospinal fluid is lower than that of the blood. The sedimentation of the erythrocytes is markedly accelerated, and the Brudsinzki and Kernig signs are positive.

Causes of Failures Observed in the Treatment of Tuberculous Meningitis in Children with Streptomycin (*Causes des échecs observés dans le traitement de la méningite tuberculeuse de l'enfant par la streptomycine*). *Robert Debré, H. E. Brissaud, P. Mozziconacci, Maud Cousin and A. Kaplan, Hôpital des Enfants-Malades, Paris.* Arch. franç. pédiat. 6: 441–66, Sept.-Oct. 1949.

This report concerns 189 cases of tuberculous meningitis in children treated with streptomycin from Jan. 1, 1947 to Oct. 1, 1948. At the time this report was made (March 1, 1949) 89 of these children had died. Treatment has been stopped in 61 of the 100 living children, and they are clinically well. The cerebrospinal fluid is normal. Twenty-two of these have been without treatment for over a year and are entirely normal both physically and mentally. In these 100 cases diagnosis of tuberculous meningitis was made by demonstrations of the tubercle bacilli in the cerebrospinal fluid in 64 cases, including 16 of the 22 cases considered cured. In the other cases the diagnosis was based on clinical findings, including in some cases the presence of lesions of miliary tuberculosis in the lungs.

Three factors are of special importance in determining prognosis of tuberculous meningitis. Age of the child is one important factor; the percentage of survivals was 40% for children 1 to 6 years of age in the authors' series; 60% for those 6 to 11 years; and 70% for those 11 to 16 years old. Of 9 infants under 1 year of age, only 2 lived, and both of these survivors were 11 months old when admitted to the hospital. Another important factor in prognosis is the condition of the child when treatment is begun; children admitted in coma did not respond to treatment and died within a few days to a few weeks. The largest percentage of deaths in the series is, therefore, to be attributed to delay in diagnosis, and the lateness of the initial treatment, i.e., when the child was in coma, at the terminal stage, rather than at an early stage of the disease. The third important factor is the method of treatment employed, as indicated by the fact that of the 93 patients treated early in the series, from January to September 1947, 63 died; while in the later part of the series, as the method of treatment had been better developed, 70 of 96 patients survived. In the cases in which death occurred late after a period of improvement, autopsy studies showed that this was due to very extensive lesions. Bacteriological studies in 59 patients indicated that streptomycin-resistance rarely developed and that only in progressively severe cases, a few days before death. In cases in which treatment was stopped and a recurrence followed, the tubercle bacilli isolated at the time of the recurrence were not streptomycin-resistant.

The treatment of tuberculous meningitis in children, as now employed, includes intramuscular injections of streptomycin in six daily doses. The daily dose used at first is usually 100,000 units per Kg.,

reduced to 50,000 units per Kg. after 1 month; in some cases 75,000 units per Kg. is employed initially, reduced to 30,000 units per Kg. after 1 month. Intramuscular treatment is continued for 2 months after the cerebrospinal fluid has become entirely normal. Streptomycin is also given intraspinally at the beginning of treatment and continued for several weeks; two daily injections are given at first, for 8 to 10 days, then one daily injection, or in some cases an injection every other day. The dosage varied from 15,000 to 50,000 units, according to age. 6 tables. 11 figures.

15. Liver, Kidneys, Spleen

Liver Function in Newborn Infants, with Special Reference to Excretion of Bromsulphalein. *Simon Yudkin and Sydney S. Gellis, Harvard Medical School, Boston, Mass.* Arch. Dis. Child. 24: 12–14, March 1949.

Eighty-three bromsulphalein excretion tests have been carried out on fullterm infants from 8 to 216 hours old. The younger infants showed greater retention of dye than did infants over 4 days of age. Those over 4 days old still showed greater retention than reported for adults given equivalent amounts of dye. There was no correlation between the amount of dye retention and the level of serum bilirubin or between the amount of dye retention and the weight of the infant. Thymol turbidity and thymol flocculation tests, cephalin cholesterol flocculation tests, and colloidal gold tests carried out on the serum of 32 other infants of the same age range showed no abnormalities. 19 references. 1 table.

Degenerative Changes in the Right Half of the Liver Resulting from Intra-Uterine Anoxia. *Peter Gruenwald, Long Island College of Medicine and Kings County Hospital, Brooklyn, N. Y.* Am. J. Clin. Path. 19: 801–13, Sept. 1949.

A difference in appearance of the two halves of the liver was noted in 15% of autopsies on infants less than 2 months of age. The lateral portions were divided by a line roughly 1 to 2 cm. to the right of the falciform ligament. Degenerative changes were seen microscopically either in the right half of the liver alone or were more severe in the right half than in the left. These changes included cloudy swelling or fat vacuolation of the cytoplasm, fatty metamorphosis, hemosiderosis, atrophy with severe congestion, and multiple foci of necrosis.

Since the majority of the cases were stillborn or newborn infants who might have acquired the abnormality in utero, an examination of the fetal circulation affecting the liver made it evident that some arterial blood from the umbilical vein may enter the left half but not the

right half of the liver. This suggests that the umbilical vein has a protective action on the left half of the liver. The same pathologic changes were found in various types of anoxia of the liver. A high incidence of evidences of asphyxia was found in such patients. These evidences included focal hemorrhage in the thoracic viscera or the brain, massive aspiration of vernix caseosa, focal necrosis in the wall of the arteries of the heart and liver, and acute esophagitis. Newborn infants with a history or with signs of severe asphyxia appear to be predisposed to esophagitis owing perhaps to the shock caused by asphyxia. Large amounts of iron-containing pigment were present only in erythroblastosis fetalis. Since many of the cases had had prolonged periods of anoxia after birth, the difference in appearance between the two halves of the liver may have been due to continuation or residue from previous intra-uterine anoxia. 8 references. 2 tables. 14 figures.—*R. Cohen.*

Cystic Disease of the Right Kidney in an Infant. *J. H. Carver, London, England.* Brit. J. Urol. 21: 229–31, Sept. 1949.

A baby girl aged 12 months was hospitalized with a history of five days' hematuria. There was no previous illness. The right kidney was enlarged to the size of an orange and the left could not be felt. Intravenous pyelograms revealed poor filling of the right kidney and whatever dye was present was in the upper pole. The left kidney was normal. Retrograde pyelogram showed gross distortion of the right renal pelvis.

The right kidney was removed under the impression that a Wilms' tumor was present. Examination of the specimen showed the lower four-fifths of the kidney to be occupied by cysts, whereas the upper fifth was normal. Sections through the cystic portion revealed remains of kidney tubules lying between cysts of all sizes, some containing altered blood and some clear fluid. In the upper pole the usual renal pattern of cortex, medulla and glomeruli was seen. The cysts were lined by epithelium. Evidence of their origin could not be obtained. There was no family history of cystic disease, and the child is at present, 12 months after operation, in perfect health. Eight similar cases have been reported in the literature. 2 references.—*Author's abstract.*

A Case of Tuberculous Hepatitis and Its Biological Reactions. *Constantine V. Choremis and Nicolass Ninios, Pediatric Clinic at Athens University, Athens, Greece.* Acta paediat. 27 fasc. 2: 188–94, 1949.

A boy 14 years of age was hospitalized with symptoms indicating an acute liver abscess; the symptoms did not respond to penicillin therapy. At operation no abscess was found, but examination of the liver

and biopsy showed disseminated tuberculosis of the liver. Streptomycin was given in a total dose of 45 Gm.; the symptoms subsided rapidly under treatment, and the patient, who is being closely followed, is in good health. The blood culture was positive for the tubercle bacillus, but the tuberculin reaction was negative until after streptomycin had been administered, when it became only weakly positive.

Maturation of Renal Function in Childhood: Clearance Studies. *Mitchell I. Rubin, Erika Bruck and Milton Rapoport, with the technical assistance of Marjorie Snively, Helen McKay and Alverna Baumler, University of Buffalo, and the Children's Hospital of Buffalo; and the School of Medicine, University of Pennsylvania, and the Children's Hospital of Philadelphia.* J. Clin. Invest. 28: 1144–62, Sept. 1949.

Series of studies were conducted in renal physiology in 63 normal well infants and children, aged 2 days to 12 years, in order to determine the maturation rate of individual renal functions from the newborn period through childhood. The following functions were estimated: glomerular filtration rate, maximal tubular excretory capacity for para-amino-hippurate, urea clearance, and effective plasma flow.

The glomerular filtration rate (GFR) was determined as mannitol clearance by the single injection technic. The effective renal plasma flow (RPF) was determined simultaneously as the clearance of sodium para-amino-hippurate (PAH) at low plasma levels (between 0.5 and 3 mg. per 100 ml. of plasma). The tubular excretory capacity (Tm_{PAH}) was determined by the excretion of PAH at high blood levels (between 50 and 100 mg. per 100 ml. of plasma). The urea clearance was determined simultaneously with the mannitol clearance for three periods in each test. All tests were performed with a relatively high urine flow, resulting from the diuresis produced by mannitol and the intravenous infusion. The figures obtained were corrected in terms of standard adult surface area (milliliters per minute/1.73 square meters body surface area).

The clearance values, generally speaking, proved to be lowest in the smallest infants and rose gradually to reach adult values around the second year of life. Maturation was most rapid in the first six months, then proceeded more slowly. The youngest child in whom all functions fell within the adult range was seven months of age. In the average child, however, complete maturation of all functions studied was not achieved before the end of the second year, though individual functions, particularly Tm_{PAH}, were often at mature levels at a much younger age.

Glomerular filtration proved to be closely correlated to adult values after the first few months of life when kidney weight was used as the basis for reference. When body weight and height were taken as the

basis for reference the data were very variable and showed no regular maturational trend. With surface area as the basis of reference the maturation rate seemed slower than with kidney weight.

Comparison of the relative rates of maturation showed that the individual functions developed at irregular rates; one function apparently reached maturity in a given child earlier than another, and in a second child the reverse occurred. There was a tendency toward high filtration fractions (GFR/RPF) in the early months of life. This continued through the second and third years. The rate of Tm_{PAH} maturation was extremely irregular. In several of the children under 2 years of age the rate of plasma flow was closer to the adult range than was the Tm_{PAH}. There was a tendency for glomerular filtration to be more mature in the youngest infants than the other functions measured. 21 references. 5 figures. 2 tables.

Urinary Infections in Children. *George B. Logan, Rochester, Minn.* Proc. Staff Meet., Mayo Clin. 24: 562–64, Oct. 26, 1949.

Infections of the urinary tract in children occur chiefly in girls. When they occur in boys, some organic lesion of the urinary tract will usually be found. Treatment of these infections requires knowledge that infection is actually present, of the type of infecting organism, of renal function, and of the presence or absence of renal stasis. It is seldom possible to make a diagnosis or properly treat a urinary tract infection without making one or more cultures of the patient's urine. A small glass catheter is used to obtain urine for culture. Sulfathiazole in a dose of ½ gr. per pound (0.07 Gm. per kilogram) of body weight every 24 hours is the best drug for the treatment of children having infections due to gram-negative bacilli. The daily dose seldom need exceed 15 to 20 grains (1 to 1.3 grams). Mandelic acid is the drug of choice in treatment of children having infections due to *Streptococcus faecalis* and some strains of *Escherichia coli*. A concentration of 0.5 to 1% should be maintained in the urine and the pH of the urine should be kept between 5 and 5.5. Drugs should be given at equal regular intervals throughout the 24-hour period. The urine should be rendered sterile and kept sterile for a week before treatment is stopped. It seldom is necessary to employ penicillin or streptomycin. Aureomycin is useful.—*Author's abstract.*

Nephrolithiasis with Renal Tubular Failure. *Sydney Israels, H. Muth and I. Zeavin, University of Manitoba Faculty of Medicine, Winnipeg, Manitoba, Canada.* Am. J. Dis. Child. 78: 389–92, Sept. 1949.

A 14-month-old Indian boy exhibited renal stones and a metabolic disturbance which was attributed to a primary defect in the ability of the renal tubules to form ammonia. This led to a loss of fixed base,

with precipitation of calcium salts in the tubules and renal pelves. The boy had been passing calculi which contained calcium, urates, phosphates and oxalates. The urine had a specific gravity of 1.018 and contained neither albumin nor cells. The Sulkowitch test gave a milky precipitate. The carbon dioxide content of venous blood was low, being 19.5 milliequivalents per liter; the chlorides were elevated, measuring 106.2 milliequivalents per liter; there were 10 mg. of calcium, 4 mg. of phosphorus and 7.9 Gm. of serum protein per 100 cc. Serum alkaline phosphatase and the nonprotein nitrogen level were normal. When given an acid ash diet the ammonia excretion in the urine did not go up. An alkaline ash diet reduced the calcium output considerably; on this routine the patient passed the stones present in the renal pelves and had formed no new ones after four months.

The failure of rickets to develop is attributed to the fact that the serum phosphorus failed to fall to a low level. This, in turn, was ascribed to compensation for the loss of calcium in the urine by an adequate intake and absorption of calcium. Lowered serum calcium levels failed to occur and parathyroid activity was not stimulated to lower the phosphorus level. 4 references. 2 figures. 1 table.

Nephrosis in Children. I. Observations on Eighty-Four Patients. II. Clearance and Saturation Tests. *Enrique Galan, Department of Pediatrics, University of Habana, Habana, Cuba.* Am. J. Dis. Child. 77: 328–30, March 1949.

An analysis is presented of the clinical and laboratory findings in 84 children with nephrosis seen in the past 10 years. All showed pitting and recurrent edema, oliguria, albuminuria, hypoproteinemia, hypercholesteremia and high incidence of bacterial infection. Most of the children were 2 to 4 years of age; the youngest was 10 months old. There were only a few Negro patients. Nephritic symptoms, such as hematuria, hypertension and urea retention were seen in 83% of the patients. In 8 the onset and course of illness were without nephritic symptoms. Only 4 showed the clinical picture of chronic glomerulonephritis. Hematuria, as evaluated by the Addis count of urinary sediment, was present in 67 patients. Of these, 51 had hematuria from the beginning of the illness. Hematuria was early or late, persistent, transient or recurrent. Some with initial hematuria showed a subsequent course of "pure lipid nephrosis," and vice versa. A close relation could not always be established between intensity of hematuria and extent of glomerular involvement. Absence of hematuria did not exclude the possibility of inflammatory changes in the kidneys.

Urea retention in the blood in amounts above 35 mg. per 100 cc. was reported in 52 patients, and elevated blood pressure in 47. Dilatation of the heart and myocardial damage were recorded for 12 and 4,

respectively. Sixty-six had had bacterial infection, 80 increased sedimentation rate, 66 fever, 57 leukocytosis, 20 nonspecific diarrhea, 16 hepatomegaly, 12 anemia, and 11 low basal metabolic rates. Inflammatory or proliferative changes or both were observed in the kidneys of all but 10 patients on whom autopsies were performed and 3 from whom biopsies were taken. These changes were dependent on three factors: predominance of nephritic symptoms at the onset and during the clinical course, activity and type of bacterial infection, and duration of illness. Most patients had had an infection almost immediately before the development of edema. Upper respiratory tract disease and pyodermia were the leading types of infection. Pneumococcic peritonitis appeared in 24 of 66 children. One child had 6 attacks of pneumococcic peritonitis, 1 of *Escherichia coli* peritonitis, and 1 of pneumococcic meningitis. Abdominal taps with culture of the ascitic fluid were done routinely whenever any child had abdominal pain, fever and leukocytosis. In treatment, intraperitoneal injections of penicillin for pneumococcic infections and of streptomycin for infections with *E. coli* and Salmonella gave the best results. Septicemia (with cultures of the blood yielding pathogens) was present in 11, with pneumococcus as the most common organism. The mortality rate from bacterial infection previous to introduction of sulfonamide drugs and penicillin was 25.5%; after introduction of these new drugs, 13.5%.

The average concentration of protein in the urine was 0.83 Gm. per 100 ml. The highest was 4.3 Gm. The average daily excretion of protein during the edematous stage was 2.02 Gm.; the highest observed was 17.42 Gm. per day. No close relation was demonstrable between proteinuria, hypoproteinemia and edema. The serum protein in several cases was lower after the disappearance of the edema than before. High doses of concentrated plasma or human serum (as much as 3,000 cc.) failed to decrease the edematous condition of a large number of patients and did not always increase the protein concentration in plasma. Salt intake during the active stage was observed to increase the proteinuria and edema. Similar increases were repeated during bacterial infections, with disappearance of these symptoms after the infection was controlled. On the other hand, disappearance of edema and dehydration was observed in a few severe infections, followed by a spontaneous and unexplainable improvement in the metabolic disturbances. Such an improvement, also observed with measles, occurring spontaneously or induced by inoculation, proved only temporary as a rule. Recurrence of edema was seen as late as 10 months after an apparent cure. A spontaneous crisis of polyuria, with total elimination of edema and normalization of proteinemia and lipemia, occurred in 2 children without preceding infection or medical treatment.

Therapy of these patients consisted in prophylaxis and treatment of bacterial infections, rest in bed during the active edematous stage, proper diet (high in vitamins and protein and low in salt), low intake

of fluid and intravenously administered protein therapy (plasma concentrated human serum and whole blood). A higher concentration of cholesterol was observed in the renal venous blood of 2 nephrotic children as compared with concentrations determined simultaneously in the peripheral venous and arterial blood. A total of 165 clearance and saturation tests was performed in 5 patients with acute hemorrhagic nephritis and 14 with nephrosis. In acute hemorrhagic nephritis the effective renal plasma flow, glomerular filtration rate and tubular excretory and reabsorptive Galan capacity were decreased. In nephronephritis or nephrosis with glomerular involvement the results were the same, but with a relative increase of tubular reabsorption. In uncomplicated nephrosis values for all these determinations were normal or increased. The various saturation and clearance tests indicated that tubular reabsorption is relatively increased in nephrosis and decreased in glomerulonephritis. This increased tubular reabsorption is a possible factor in the pathogenesis of nephrotic edema. 21 references. 8 tables. 7 figures.

The foregoing observations are in accord with those of North American observers.—EDITOR.

16. Metabolic and Systemic Disorders

Glycogen Disease of the Liver with Report of a Case. *W. J. Matheson, St. Mary's Hospital, London, England.* J. Pediat. 34: 537–44, May 1949.

Glycogen disease is characterized by the accumulation of excessive quantities of glycogen in the liver, kidneys, skeletal muscles, or heart. The liver is the most often affected. Despite the enormous accumulations of glycogen no gross disturbance in the function of these organs results, except in the case of the heart, wherein involvement alone has been described in heart failure of infancy. An 11-year-old boy is described who had been followed because of this condition since 14 months of age. He had a distended abdomen, retarded growth, a large liver, a fasting blood sugar of 60 mg. per 100 ml. and a high or flat oral glucose tolerance curve. His urine contained ketone bodies at all times of the day, detected by Rothera's but never by Gerhardt's test. Treatment with bile salts produced disappearance of ketonuria and decrease in the girth of the abdomen. The medication consisted of administration of two tablets of a bile salt preparation orally, three times a day. Each tablet contained 5 gr. of dehydrocholic acid. Confirmation of the diagnosis by liver biopsy was not permitted. 24 references. 3 figures.

The metabolic disturbances in glycogen disease seem to vary from patient to patient. This boy had it to a mild or moderate degree; more severe cases rarely survive the first few years of life.—EDITOR.

17. Milk; Infant and Child Feeding

See Contents for Related Articles

18. Miscellaneous

Hyaluronidase. *Joseph Schwartzmann and Morrison Levbarg, New York, N. Y.* J. Pediat. 36: 79–86, Jan. 1950.

Hyaluronidase is a mucolytic enzyme which acts on and depolymerizes hyaluronic acid, the substance that binds water in the interstitial spaces and holds cells together in a jelly-like matrix. Hyaluronidase has been obtained from various sources such as bacteria, leech extracts, bee, snake, and spider venoms, spermatozoa and mammalian testes. All work to-date indicates its relative harmlessness since no physiologic disturbances have been detected. However, there is a very small percentage of sensitivity so that skin testing prior to its use is recommended. It has the ability of greatly increasing the rate of fluid absorption. The best and most consistent results were obtained with 500 viscosity units. This dose was used in 83 cases of which 70 were with electrolytes, 7 with plasma, and 6 with whole blood. Its action was delayed when the total body protein was below 5.5 mg. per 100 ml. but absorption recommenced as soon as this was corrected. Its effect on 2 cases of hydrocephalus and 2 of nephrotic nephritis was studied but no definite conclusion was reached. Attempts to dissolve urinary calculi, otitic cerumen, and nasal mucus were not encouraging. Human plasma and salicylates were found to have some antihyaluronidase activity. Hyaluronidase has proven successful in hypodermoclyses, in local anesthesia in general and dental surgery, and in the intramuscular method of pyelography. Next to intravenous therapy, this is the quickest means of administering fluids. 26 references. 4 tables.—*Authors' abstract.*

19. Musculoskeletal System

Fractures of the Cervical Spine in Children. *G. Pettersson, Gothenburg Children's Hospital, Gothenburg, Sweden.* Acta. Chir. Scand. 98: 288–94, Sept. 1949.

A new method of treatment of fractures of the cervical spine, which is especially applicable to children, is reported and 4 illustrative case histories presented. Previous methods of treating these cases usually involved a sling suspension followed by a plaster collar. This is difficult to use with young children. In the new procedure the patients are treated by bed rest in a dorsal position with the head hanging freely down. The weight of the head constitutes a large part of the total body weight in children and acts in a direction which facilitates

reduction of an existing dislocation or compression. No extra apparatus is necessary. The head is supported by a narrow sand bag on each side and the position of the patient may be adjusted or built up with wedge-shaped bolsters, bed rests, etc. It may be necessary to elevate the foot of the bed to keep the patient from sliding down. Patients are comfortable in this position and easily fed, fluids being taken through a glass tube. An adjustable mirror may be placed over the bed.

The treatment caused no discomfort and produced good results in all 4 cases. 6 figures.

20. Nervous System

The Cerebral Palsies: Their Diagnosis, Classification and Treatment. *William D. Dugan, Children's Hospital, Buffalo, N. Y.* New York State J. Med. 49: 2535–40, Nov. 1, 1949.

The cerebral palsies are classified into five general types according to Phelps: spasticity, athetosis, rigidity, tremor and ataxia. Treatment is specialized according to the type. In spasticity, training is aimed at increasing the range of mobility of involved muscles without eliciting the stretch reflex. Flaccidity is overcome by active exercise. The program is a progressive one without coercion to the point of discouragement. With athetosis, relaxation by elimination of involuntary motion and the acquisition of motion from this relaxed position is stressed. Rigidity is handled in the manner of spasticity, except that overactive stretch reflexes do not interfere. In tremor, the program is similar to that for athetosis. The training of ataxic patients is basically in motor balance. Braces for prevention and correction of deformities, control of involuntary motion and training in wanted motion are useful. Drugs and surgery are of less value but have a place in therapy. Treatment ideally should be begun before the age of 12 months. A large institution is required for severe cases. Supervised home therapy can be effective. Speech, necessary hand skills and walking should be taught first. 3 references.—*A. M. Bongiovanni.*

Diagnostic Techniques for Children with Cerebral Palsy. *Eric Denhoff, Providence, R. I.* Rhode Island M. J. 32: 483–87, 522, Sept. 1949.

The staff of the Meeting Street School, Rhode Island's cerebral palsy center, utilizing routine histories and examinations of cerebral palsied children, has outlined a plan for earlier diagnosis of that syndrome. A diagnosis of cerebral palsy may be made early in infancy in a majority of patients if the leads obtained from a history are properly evaluated. Maternal past history reveals a disproportionately high incidence of abortion, premature labor and stillbirth, chronic ma-

ternal illness prior to pregnancy as well as a large number with illness during pregnancy. Over half of the mothers were reported to have had an obstetrical complication such as premature rupture, breech and mid-forceps delivery. The incidence of prematurity (36%) was four times higher than the normal population; 67% of the children had an abnormal sign or symptom noted at birth or shortly after, primarily the result of bleeding or anoxia. Excessive vomiting, stiffening, crying and cyanosis were outstanding. The developmental history was significant in that in the majority the achievement of mature developmental items was prolonged into the second to sixth year. Criteria utilized during infancy for early diagnosis as well as a scheme for a short neurological examination to determine the presence of brain injury, are described. 11 references. 5 tables, 2 charts.—*Author's abstract.*

Transient Hemiplegia Associated with Febrile Convulsions. Report of a Case. *Joseph Schwartzman, New York, N. Y.* Arch. Pediat. 66: 489–91, Nov. 1949.

A ten-month-old female infant with bronchopneumonia was admitted with febrile convulsions associated with a right hemiplegia. All laboratory data were negative, except for a slight increase in the pressure and sugar content of the spinal fluid. The paresis diminished gradually and after forty-eight hours had completely cleared. When discharged, the infant was in good condition without any residual symptoms. 1 reference.—*Author's abstract.*

Chorea (Sydenham). A Study of Fifty-Eight Additional Patients. *B. M. Kagan, D. Rosner and P. Rosenblum, Chicago, Ill.* Am. J. Dis. Child. 78: 306–13, Sept. 1949.

In a previous study of 107 patients with Sydenham's chorea, it was found that chorea with an increased erythrocyte sedimentation rate was in most instances associated with active rheumatic fever. Patients who (in the absence of cardiac failure) had a normal erythrocyte sedimentation rate during the early part of their chorea had no symptoms or signs of rheumatic disease at that time or at any time during a long follow-up period. Fifty-eight additional cases of chorea are now presented. In this second study the material was drawn from four different hospitals, so that there was considerable variation in the methods of testing and in the interpretation placed upon the results of the tests used. In spite of this lack of uniformity, the data obtained proved to be essentially similar and the basic principles suggested by the previous study were confirmed.

As a result of these studies, it is recommended that cases of Sydenham's chorea, in which early in the course of the initial episode there is

a normal sedimentation rate and no other evidence of rheumatic fever, be referred to as chorea Sydenham, cause undetermined. This would avoid any implication that they are due to rheumatic fever with all its possible sequelae. Although the data indicate that chorea seen during a first episode with an increased rate are most likely associated with rheumatic fever, it is difficult in the absence of other rheumatic manifestations to establish with certainty that even these cases have rheumatic fever. It is therefore sugested that a diagnosis of chorea Sydenham, associated with rheumatic fever, be made with certainty only when there is other evidence upon which a diagnosis of rheumatic fever can be made.

Patients who have Sydenham's chorea associated with rheumatic fever may have similar recurrences or may have recurrences during which there are no other evidences of rheumatic fever. Patients who have chorea Syndenham, cause undetermined, (i.e., not associated with rheumatic fever) may have recurrences which are also not associated with rheumatic fever, and as a group they may be expected to experience no greater incidence of rheumatic fever or its sequelae than does the general child population. 5 references. 2 figures.—*Author's abstract.*

21. Newborn Period, Prematurity

Newborn Infants of Diabetic Mothers. *Robert O. Warthen, Children's Hospital, Washington, D. C.* Clin. Proc. Children's Hosp. Washington, D. C. 5: 39–42, Jan. 1949.

A white male infant is described who was born of a diabetic mother after 38 weeks' gestation. The mother had been under treatment for diabetes mellitus for over 14 years and was well controlled with insulin before and after delivery of the infant by cesarean section. The infant weighed 8 lb. 6 oz. at birth, was 20 inches long and exhibited pronounced generalized edema. Extreme cyanosis and dyspnea with periods of apnea occurred during the first 24 hours of life. On the second and third days his respirations improved greatly and cyanosis was not noted so long as continuous oxygen was employed. By the fourth day the generalized edema had disappeared and a weight loss of 22 ounces had occurred. Oxygen was discontinued on the fifth day. Twenty-five cc. of 10% glucose were given intravenously at 4 hours of age as a prophylactic measure. The blood sugar level at birth was 40 mg. %; at eight hours, 66 mg.; at 24 hours, 40 mg.; and at 30 hours, 72 mg. No oral or parenteral fluids were employed for the first 48 hours. From 48 to 72 hours 5 per cent glucose in distilled water was offered orally and at 72 hours breast feeding was begun. When discharged at the age of 12 days the weight was 7 lb. 2 oz.

Infants born of diabetic mothers usually exhibit the picture of postmaturity, being longer and weighing more than other infants born after comparable gestation periods. The weight increase is due to edema, increased body fat, and splanchnomegaly (most striking in liver, spleen and heart). They experience a marked weight drop in the first few days of life because of loss of edema fluid. Respiratory distress, cyanosis, apnea, pulmonary atelectasis, fibrillary twitchings, rapidly developing jaundice and unstable temperatures are commonly seen. Congenital defects and prematurity occur with a greater frequency. Their mortality rate is significantly higher than normal, due in part to maternal hormonal imbalance. Many have a transiently high blood sugar level which may drop during the first 4 hours of life (perhaps due to insulin received from the mother) and then rise spontaneously at about 8 hours. If the initial blood sugar is higher than normal, this early fall is usually of no consequence.

Comparative Efficacy Of Vitamin D Preparations in Prophylactic Treatment Of Premature Infants. *Kurt Glaser, Arthur H. Parmelee and William S. Hoffman, Hektoen Institute for Medical Research and the Cook County Hospital, Chicago, Ill.* Am. J. Dis. Child. 77: 1–14, Jan. 1949.

The comparative efficacy of four vitamin D preparations in preventing rickets and furthering normal growth was studied in 166 premature infants during the first eight months of life. The preparations were 1) vitamin D_2 (American Research Products, Inc.), made by electron bombardment of ergosterol, 2) viosterol, which is vitamin D_2 made by ultraviolet irradiation of ergosterol, 3) crystalline vitamin D_2 which is a crystallized extract of irradiated ergosterol, and 4) "delsterol" (vitamin D_3), made by irradiation of 7-dehydrocholesterol. The dosages used were 100 units, 200 units, 400 units and 800 units daily. No other foods containing vitamin D were given. No instances of clinical rickets were observed in any of the infants. Roentgenographic evidence of rickets occurred in 7 patients; in 2 others there was suspicious bowing of the extremities.

Phosphatase level above 15 Bodansky units per 100 cc. occurred in 29 instances, of which 23 were unaccompanied by any evidence of rickets. Levels above 20 units per 100 cc. occurred in 12 instances, of which 10 were in the groups receiving 100 and 200 units. Serum calcium and phosphorus concentrations were almost always at high normal levels, even in the presence of roentgenographic evidence of rickets. Gains in weight and length were uniformly good in all 166 infants regardless of the dosage or the type of vitamin D used.

Thus, no differences were demonstrated in the efficacy of these four vitamin D preparations in preventing rickets or in allowing growth.

One hundred units of vitamin D daily seems to be a satisfactory minimal prophylactic dose for most premature infants. Nevertheless, it would seem desirable to give 400 or 800 units daily to allow a greater margin of safety in cases of illness or temporary neglect. 10 references. 4 tables. 1 chart.

Bromsulphalein Excretion in the Newborn. *P. L. Mollison, and Marie Cutbush, Postgraduate Medical School, London, England.* Arch. Dis. Child. 24: 7–11, March 1949.

Bromsulphalein was injected into 14 newborn infants a few hours after birth. The umbilical vein was used, and the dose was 5 mg. per Kg. body weight in 0.5% solution. The catheter was left in situ for periods up to 2 hours, and blood samples were obtained at various intervals. Samples taken more than 2 hours after the injection were obtained from the external jugular vein or by pricking the warmed heel. The amount of dye fell to about 20% of the standard in 30 to 40 minutes but thereafter the rate of disappearance was very slow, so that the average retention in 7 infants 2 hours after injection was 15%. In a few infants samples were taken 24 hours after the injection, and in several of these, traces of dye were still present. In adults, only about 4% of the dye was left in the plasma 30 minutes after injection and only 1% or less was present at 60 minutes. This finding that bromsulphalein is removed from the plasma far less rapidly in newborns than in adults is most probably to be explained by an immaturity of the excretory function of the liver in the newborn. 10 references. 2 figures. 2 tables.

Prevalence and Distribution of Ossification Centers in the Newborn Infant. *Amos Christie, Vanderbilt University School of Medicine, Nashville, Tenn.* Am. J. Dis. Child. 77: 355–61, March 1949.

Roentgenograms of 1,112 newborn infants were observed for the presence of 10 centers of ossification in the extremities and were analyzed in relation to the birth weight, race and sex of the subjects. The data (collected by the Children's Bureau) included approximately equal numbers of white girls, white boys, Negro girls and Negro boys and birth weight groupings were from less than 2000 grams to over 4000 grams. The order of appearance of the centers seemed to be calcaneus, talus, distal epiphysis of the femur, proximal epiphysis of the tibia, cuboid, head of the humerus, capitate, hamate, third cuneiform and head of the femur. For any selected center, there is progressive prevalence as the birth weight increases. Greater prevalence was seen in the Negro than in the white and in the female infants of both races as compared to the male. The possible research and clinical significance of these findings is discussed. 11 references. 1 table.—*M. Maresh.*

The ability to predict fetal maturity with accuracy is of great importance to the obstetrician and pediatrician when faced with the problem of early induction of labor. Much practical help in this prediction may be obtained by a knowledge of the development of the osseous pattern in newborns of various weights and categorized by race and sex, as Dr. Christie presents them in this article.—EDITOR.

Factors in Neonatal Resistance to Anoxia. I. Temperature and Survival of Newborn Guinea Pigs Under Anoxia. *J. A. Miller, Emory University, Atlanta, Ga.* Science 110: 113–14, July 29, 1949.

Litter-mate guinea pigs, 24 hours old or less, were exposed to anoxia for 4¼ or 4½ minutes. This length of exposure was sufficient to kill animals that had been warmed or left at room temperature, while a series of animals that had been cooled by alcohol sponging recovered completely with one exception. In another experiment in which animals were exposed to anoxia until dead, the reduction of colonic temperatures (2 to 5° C.) prolonged life at about the same rate as might be expected from van't Hoff's rule. Thus, elevation of body temperature is deleterious to day-old guinea pigs subjected to anoxic anoxia, while reduction of temperature is beneficial. The procedure of placing anoxic infants in a warmed bassinet or incubator is questioned on the basis of these studies. 1 figure.—*A. M. Bongiovanni.*

It is superfluous to indicate in detail that chemical reactions proceed more rapidly at higher temperatures. As Clement Smith cites (Physiology of the Newborn, Chas. C Thomas, 1946), on the first day of life when body temperatures are lower, the metabolism per weight and body surface is lower. It would seem logical then that tissue damage in the presence of anoxia might be aggravated by higher temperature. This has been borne out by experience with surgical diseases of the extremities. Perhaps reasonable conservatism is to be advised with emphasis on the avoidance of overheating anoxic newborn infants.—EDITOR.

Gastric Suction: A Proposed Additional Technic for the Prevention of Asphyxia in Infants Delivered by Cesarean Section. A Preliminary Report. *S. S. Gellis, P. White and W. Pfeffer, The Children's Medical Center, and Harvard Medical School, Boston, Mass.* New England J. Med. 240: 533–37, April 7, 1949.

Out of 50 infants delivered similarly by cesarean section from diabetic mothers, 25 had gastric suction immediately after birth and 4 had mild respiratory difficulties; of 25 who were not suctioned, 6 had respiratory signs at birth and 9 soon afterwards. Increased respiratory rate, cyanosis and retraction of the chest were much more marked in the latter group. Only spinal anesthesia was used on the sections, all infants breathed spontaneously at birth and there were no deaths.

The average gastric content measured 20 cc. (range 10 to 36 cc.) Twelve infants delivered from non-diabetic mothers by cesarean section had gastric contents averaging 14 cc. (6 to 28 cc.) and 2 had mild respiratory signs at birth. Fifteen infants delivered by low forceps from non-diabetic mothers had an average of 2 cc. in their stomachs (0 to 7 cc.) and none had any difficulty. Delayed respiratory distress may be caused by gradual packing of material aspirated during delivery into the alveolar spaces forming an asphyxial membrane. In addition, regurgitation and aspiration of gastric contents may occur in infants delivered by cesarean section. For the latter, routine gastric suction is advocated as one of the procedures for the prevention of neonatal asphyxia. 27 references. 5 tables.—*L. V. dos Remedios.*

This observation of unusual gastric distention in infants delivered by cesarean section is not easy to explain. Nevertheless, the fact that the distention seemed great enough to cause symptoms which were relieved by gastric suction can not be ignored. This maneuver should be kept in mind when confronted with such an infant suffering respiratory distress.—EDITOR.

22. Nutrition

The Sulfur Amino Acid Requirement of the Infant. *Anthony A. Albanese, L. E. Holt, Jr., Virginia I. Davis, Selma E. Snyderman, Marilyn Lein and Emilie M. Smetak, New York University College of Medicine and Bellevue Hospital, New York.* J. Nutrition 37: 511–20, April 1949.

The sulfur amino acid requirements of 5 normal male infants (4 to 11 months of age) were studied, with data given. On the basis of calculations it is suggested that even with a liberal intake breast milk provides a very meager margin of safety during the early months of life, and fails to provide an adequate quantity of the sulfur amino acids in the latter part of the first year. On the other hand, cow's milk formulas seem to provide adequate amounts of sulfur amino acids. These calculations support the view that the claimed superior biological value of breast milk cannot be due in any great measure to its sulfur amino acid content. 6 references. 1 figure. 3 tables.

Hypo- and Hypervitaminosis. *A. van Westrienen, Rotterdam, the Netherlands.* Maandschr. v. Kindergeneesk. 17: 1–17, 1949.

Scurvy has become more common since the war, and is ascribed to "oversterilizing" of milk. The clinical signs are discussed, and several cases with unusual findings reported. Overdosage of vitamin D with signs of intoxication may follow massive therapy. The clinical features are severe loss of appetite with polydipsia and polyuria, resulting in

retardation of growth and loss of weight; fever, increased sedimentation rate, anemia and leukocytosis that cannot be explained by other causes. Occasionally one sees hypercalcemia and later uremia when the function of the kidneys is badly damaged by calcinosis. Decalcification of the skeleton may follow; if misunderstood this may lead to treatment with ultraviolet rays and more supply of vitamin D. The author therefore prefers regular treatment with small doses of vitamin D. Observations are mentioned which demonstrate retention of calcium in rachitic children after vitamin D is given, but hypercalcuria with lowering of the calcium balance in non-rachitic children. Three cases of moderate overdosage are described. 17 references. 6 figures.—*F. Kuipers.*

23. Parasitic Diseases

Head Louse Infestation in School Children: A Comparative Trial of Insecticides. *C. B. Huss, Ministry of Health, England.* Monthly Bull. Ministry of Health & Pub. Health Lab. Service 8: 112–15, June 1949.

In 1948 a study was carried out by the Ministry of Education of Great Britain with respect to the value of synthetic insecticides in the control of head lice in school children. Five hundred children were treated with gamma B.H.C. (gamma benzene hexachloride) or "gammexane," and 422 with D.D.T. (dichlor diphenyl trichlorethane). The gammexane preparation used contained 1% gamma B.H.C. and had to be diluted immediately prior to use with 4 parts of water to 1 part of the preparation, thus producing an 0.2% suspension of gammexane. The D.D.T. preparation was a 2% emulsion, supplied ready for use. No child developed any irritation or other adverse reaction. Both preparations were easy to apply. Gamma B.H.C. has a much more rapid action on live lice. The necessity to dilute the preparation, 1 part in 4, prior to use, was a disadvantage. The preparation was not noticeable after application. D.D.T. was much slower acting and could be plainly detected on the child's hair. Both substances had a powerful lethal effect on the head louse, and were acceptable to parents and children. Neither preparation was outstandingly superior to the other. 1 table.

24. Pathology, Anatomy, Bacteriology

Disseminated Visceral Lesions Associated With Extreme Eosinophilia. Pathologic and Clinical Observations on a Syndrome of Young Children. *Wolf W. Zuelzer and Leonard Apt, Children's Hospital of Michigan and Wayne University College of Medicine, Detroit, Mich.* Am. J. Dis. Child. 78: 153–81, Aug. 1949.

Eight young children are described, who were ill with a syndrome characterized by eosinophilia of the blood and bone marrow, hyperleukocytosis and hyperglobulinemia, persisting over long periods. The clinical pictures were inconstant. Among the manifestations were hepatomegaly, pulmonary infiltrations, asthmatic complaints, joint symptoms, urticaria and convulsions. The majority were free of symptoms through much of their course. The white count ranged from 8,000 to 105,000, with 15 to 87% eosinophiles.

Pathologic lesions were demonstrated by biopsy in the liver in 4 cases. The lesions consisted of necrosis, granuloma formation and severe eosinophilic infiltrations. These corresponded to what has been described by other authors in the lungs of patients with the so-called Loeffler syndrome. "They are interpreted as the expression of a common pathologic process of variable localization and severity, the nature of which is regarded as an allergic-hyperergic tissue response to undetermined antigens." 15 references. 17 figures.

25. Physiology, Biochemistry

The Serum Proteins in Infectious Mononucleosis. Electrophoretic Studies. *Kenneth Sterling, University of Chicago, Chicago, Ill.* J. Clin. Invest. 28: 1057–66, Sept. 1949.

It has become apparent in recent years that hepatic involvement is a frequent occurrence in infectious mononucleosis, as shown by abnormal findings on liver function tests, hepatic lesions in histologic examination of both autopsy and biopsy material in cases with and without jaundice, and the occurrence of positive cephalin-cholesterol flocculation and thymol turbidity tests. The present work was undertaken to study the serum proteins in infectious mononucleosis by electrophoresis and to examine separated protein fractions for the presence of heterophile antibodies. Comparative studies were carried out on 7 hospitalized patients with infectious mononucleosis, 10 normal volunteers with negative liver function tests, 3 patients with known hepatic disease, and two hospitalized patients with upper respiratory tract infection. There were no significant deviations from normal in the per cent compositions of the serum proteins in the normal individuals and in those with upper respiratory tract infections.

In the 3 jaundiced and the 4 non-jaundiced patients with infectious mononucleosis the principal abnormalities were diminutions of the albumin fractions and elevations of the gamma-globulin fractions. Less pronounced and less frequent were elevations of the alpha-1-globulin and the beta-globulin fractions. The liver function tests showed abnormalities in 6 of the 7 cases. These alterations in the serum proteins were interpreted as possibly related to hepatic dysfunctions, among other hypotheses entertained. The heterophile antibodies were contained predominantly in the gamma-globulin fractions of the sera, though not always confined to this fraction. The absolute increase in gamma-globulin in these cases was not due to the heterophile antibodies, as shown by finding no change in electrophoretic pattern after antibody absorption. The antibodies are present in too small quantities to cause visible alterations in electrophoretic patterns even though easily detectable by serological methods. Immuno-chemical studies corroborate the minute concentrations of antibodies in human serum. 44 references. 3 tables.

26. Psychology, Psychiatry

Psychosomatic Aspects of Paediatrics. *David Jackson, Brisbane Australia.* M. J. Australia, 1: 349–51, March 1949.

This short paper, forming a part of a symposium on "The Psychosomatic Approach in Medicine" read at a meeting of the Queensland Branch of the British Medical Association on July 2, 1948, seeks to emphasize that the consideration of the patient as a whole is of particular importance in pediatric practice, for the child is in the developing stage mentally as well as physically. Particular stress is laid not only on the role of personality, emotional and environmental peculiarities in the etiology of many disorders of childhood, but also on the effects of the management of an illness on the child's future development. For the purpose of discussion three broad groups (suggested by Kanner) are considered; a) that in which personality difficulties express themselves clearly as whole dysfunctions of the individual; b) that in which personality difficulties express themselves as involuntary part dysfunctions; c) that in which personality difficulties form essential features or sequelae of physical illness.

Attention is drawn to the importance of the third group in the whole approach to and management of a child with a prolonged illness when, perhaps, he is kept in the hospital for an unnecessarily long time, when his illness is being discussed in his hearing, when he is being examined day after day, or when a series of investigations is being arranged. An imaginative child's ideas may easily be fixed on a particular part or organ, and the foundation laid for "flight into illness" in later life.

In the case of infants in the first year of life the effect of the illness on the mother's subsequent attitude towards the child must be kept in mind. In a brief consideration of treatment, the scope of preventive (or directive) treatment here as elsewhere in the pediatric field is emphasized. Every practitioner dealing with children should remember the unseen factors of home and family, school, work, and play and endeavour to know and understand as much as he can about them in order to have a true picture of each of his patients as a whole. Trends which may be corrected can then be detected in time, and if it is realized that many manifestations of disease in childhood are either actually associated with faulty adjustment or may lead to it, serious disorders and even catastrophies in adult life may be prevented.

27. Public Health, Epidemiology

Average Length of Life in the United States Further Increased. *News Release, U. S. Public Health Service, Federal Security Agency, Washington, D. C.*, Aug. 18, 1949.

Figures compiled by the National Office of Vital Statistics of the Public Health Service, based on 1947 death rates, show a slightly higher life expectancy than in 1946. The average for the total population in the United States in 1947 was 66.8 years, the nonwhite population having a lower but steadily increasing life expectancy. The figure for nonwhite women in 1947 was 61.9 and for nonwhite men 57.9. The expectation of life at birth has steadily increased since the turn of the century, largely through control of infectious diseases which formerly took a heavy toll of lives among infants, children and young people.

Average Remaining Lifetime (In Years) At Specified Ages By Race And Sex: U. S., 1947

AGE	1947				
	Total Population	White		Nonwhite	
		Males	Females	Males	Females
0	66.8	65.2	70.6	57.9	61.9
1	68.1	66.5	71.6	60.3	63.8
5	64.5	62.9	67.9	56.9	60.4
10	59.7	58.1	63.1	52.2	55.6
15	54.9	53.4	58.3	47.5	50.9
20	50.2	48.7	53.5	43.1	46.4
25	45.7	44.2	48.7	38.9	42.3
30	41.1	39.6	44.0	34.9	38.1
35	36.5	35.0	39.4	30.8	34.0
40	32.1	30.6	34.8	27.1	30.3
45	27.8	26.3	30.3	23.6	26.6
50	23.8	22.3	26.0	20.5	23.4
55	20.0	18.7	21.9	17.9	20.5
60	16.5	15.3	18.0	15.5	17.9
65	13.3	12.3	14.4	13.3	15.9
70	10.5	9.7	11.2	11.6	14.5
75	8.0	7.4	8.5	10.2	13.2

28. Respiratory System

Two Cases of Foreign Body in the Left Main Bronchus in Children. *Brian E. Frecker, Sydney, Australia.* M. J. Australia, 2: 713–14, Nov. 12, 1949.

Two children of 4 years had coughed for 2 days and 6 weeks respectively. One was first considered to have a bronchopneumonia on the radiographic findings of an apparent widespread patchy atelectasis in the right lung. Screening showed that this film was taken on expiration, the right lung being normal and the left in a state of fixed inflation. Movement of the left dome of the diaphragm was restricted near the inspiratory limit, the mediastinum being central on full inspiration but displaced towards the right on expiration. The second child showed similar findings. In each case the bronchoscopist removed a peanut kernel from the left main bronchus. It is difficult in young children to take radiographs at a selected stage of respiration. In these cases a film on expiration may direct attention to the wrong lung while on inspiration the chest may appear normal. The importance of screening the chests of young children is therefore stressed.—*Author's abstract.*

29. Skin, Teeth, Hair

Ehlers-Danlos Syndrome in a Child of Six Years. *Elizabeth K. Turner, Melbourne, Australia.* M. J. Australia 2: 165–66, July 30, 1949.

This is a somewhat rare disease, less than 50 cases having been reported. Another case is reported in a 6-year-old girl. The syndrome is characterized by dermatorrhexis, arthrochalasia and dermatochalasia. In the first, the skin and blood vessels are fragile and break or split after the least trauma with subsequent formation of hemotomata, pseudotumors, and subcutaneous spherules. There is hyperlaxity and hyperelasticity of the joints in arthrochalasia, the patient easily making grotesque contortions of the limbs. Dermatochalasia is a hyperelasticity or hyperlaxity of the skin which enables it to be stretched or drawn out like india-rubber. The skin is so vulnerable and fragile that it easily splits and sutures tear out, adhesive strapping being the best method of closing wounds. These patients have a characteristically round face with wide-spaced prominent eyes. Subcutaneous fat is scanty. Atrophic, papyraceous scars occur and characteristic mobile, subcutaneous fatty spherules and molluscoid pseudotumors develop over bony prominences.

Cause of the syndrome is unknown but it is believed to be produced by a congenital dysplasia of the mesenchyme as all other ectodermal derivatives are normal. Skin biopsy shows an apparently develop-

mental hyperplasia of the elastic fibers which form a dense network extending into the epidermis and replacing papillary bodies, collagen fibers and subcutaneous fat. These hypertrophied elastic fibers contract and gape after slight trauma. The papyraceous scars result from the scarcity of fibroblasts and collagen fibers while the molluscoid pseudotumors are produced by extravasations of blood into the lax subcutaneous tissues. The subcutaneous spherules result from an abnormal deviation of the fatty growth, bud-like processes arising from small subcutaneous nodules and sometimes breaking down into minute, oil-containing, thick or calcified walled cysts. The reported case had the typical facies and characteristic symptoms of the disease. Blood findings were within normal limits. The only treatment suggested was a diet to produce an increased deposit of subcutaneous fat, and wearing protective clothing. 1 reference. 2 figures.

Aetiology of Erythema Nodosum in Children. *S. A. Doxiadis, Sheffield, England.* Brit. M. J. 2: 844–45, Oct. 15, 1949.

Out of 100 children with erythema nodosum 88 had positive tuberculin reactions. Fifty-nine of the 88 (67%) had other evidence of active tuberculous infection. In 54 the radiograph showed marked undoubted unilateral enlargement of the hilar shadows, and in some of these there were opacities in the lung, on the same side as the hilar enlargement, consistent with the diagnosis of primary tuberculosis. Five children had cervical adenitis and in 3 the pus obtained by incision or aspiration contained *Myco. tuberculosis.* Within 3 months after the appearance of erythema nodosum, a pleural effusion developed in 4 of those children; there was an extension of the radiological signs in the lungs in 2; miliary tuberculosis developed in 1, and 1 child died from tuberculous meningitis. In none of the children was there any evidence of rheumatic fever. It is concluded that in England, as in many continental countries, most of the children with erythema nodosum are passing through their primary tuberculous infection. Any child, therefore, with erythema nodosum should be considered to have been recently infected with tuberculosis unless carefully performd tuberculin tests are negative. 35 references. 3 tables.—*Author's abstract.*

30. Social, Economic, and Organizational Problems

See Contents for Related Articles

31. Surgery, Anesthesia

Complications of Ascariasis Requiring Surgical Treatment. Report of a Case with Abdominothoracic Complications. *Alton Ochsner, Ernest G. De Bakey and J. Leonard Dixon, Tulane University of Louisiana School of Medicine and Ochsner Clinic, New Orleans, La.* Am. J. Dis. Child. 77: 389–407, March 1949.

Ascariasis usually produces relatively few symptoms, but complications demanding surgical therapy can arise, especially intestinal obstruction, intussusception or volvulus. Perforation in ulcerated lesions of the large and small bowel can occur with migration of the worms into the peritoneal cavity. Not infrequently they may enter the biliary or pancreatic radicles, producing obstruction and infection. By migration of a large number of worms into the hepatic ducts and intrahepatic biliary radicles, multiple liver abscesses can be formed. There are no pathognomonic signs or symptoms of ascariasis, but in an individual with abdominal manifestations one should be highly suspicious when there is a history of vomiting or passing of worms. A positive diagnosis can be made only by the recovery of ova, larvae, or worms.

Antihelminthics and purgatives may be extremely dangerous in cases with surgical complications. Hexylresorcinol is preferable to other drugs. Intraluminal intestinal obstruction due to ascariades demands immediate enterotomy and evacuation of the bolus, but masses not producing obstruction in the lumen should be left undisturbed. Intussusception or volvulus without obstruction should be treated by correction of the intussusception or volvulus without enterotomy. Localized peritoneal abscesses should be drained.

Obstruction of the cystic, pancreatic or common bile ducts due to ascariades is usually diagnosed at the time of operation. Invasion of the gallbladder or cystic duct requires cholecystectomy because of the concomitant infection. When ascariades are found in the gallbladder, they are frequently present in the common duct as well. Therefore in such cases, regardless of the appearance of the choledochus, it should be carefully explored for only in this way can one be assured that the remaining ascariades will be removed. Manifestations of involvement of the pancreas may range from edema to hemorrhage, suppuration, necrosis, or abscess. Hepatic abscesses are usually multiple and offer a poor prognosis. Palpation may reveal a collection of worms, which should be evacuated after the surrounding organs have been carefully walled off, care being taken not to contaminate other serous cavities. Two cases of liver abscess produced by ascariades occurring in sisters are reported. Both ended fatally. 46 references. 10 figures.

Diagnosis of Congenital Obstruction of the Stomach and Small Intestine in the Newborn. *Eric V. Baeyer, Fairview Park Hospital, Cleveland, Ohio.* Radiology 52: 157–78, Feb. 1949.

While prompt recognition and preliminary classification of congenital alimentary obstruction are the responsibilities of the clinician, accurate preoperative information as to the location, character and severity of the obstruction is helpful to the surgeon in choosing the optimal time for operation and in predetermining the most favorable surgical approach. The pertinent clinical signs and symptoms of the more common congenital obstructive lesions, current roentgen-diagnostic technics and their indications and contraindications, and the roentgen criteria for the diagnosis of obstructive lesions of the infantile stomach and small intestine as reported in the literature are reviewed and discussed. Seven cases are presented in which radiography without the use of contrast media (flat film technic), radiography with the use of contrast media, fluoroscopy, and fluorography (spot-film technic), used singly or in combinations according to the situation at hand, provided accurate preoperative diagnoses of obstructive lesions of the stomach and small intestine. The cases presented were of hypertrophic pyloric stenosis, pyloric spasm, duodenal atresia, malrotation with partial duodenal obstruction, aplasia of a segment of ileum, incomplete atresia of the proximal jejunum and duplication cyst of the jejunum. Discussion of the technical and roentgen-diagnostic aspects of esophageal and rectal obstruction is omitted. 19 references. 7 figures. 2 tables. —*M. Maresh.*

Prolapse of the Rectum in Infancy and Childhood. *Raymond J. Jackman and Edward E. Cannon, Rochester, Minn.* S. Clin. North America 29: 1215–22, Aug. 1949.

The case records of 69 patients less than 15 years of age, who had rectal prolapse were studied. Thirty-eight were males and 31 females. Prolapse of the rectum had occurred when the patients were less than 3 years of age, in most of these. As a rule, the protrusion was slight or moderate in degree and no more than 1 or 2 cm. of rectal mucosa was everted with each bowel movement. These prolapses would either recede spontaneously or be reduced easily with gentle manipulation. In 13 cases (about 20%) more than 5 cm. of mucosa protruded and frequently was difficult to replace. In the severer cases the anal musculature was either poorly developed or the tone of the anal sphincter was less than normal. Most of the patients had been treated conservatively. In a few instances the prolapse was evident in the first months of life and may be assumed to be congenital in nature. The association with other congenital defects such as spina bifida and exstrophy of the bladder was evident.

Twenty-five patients whose age of onset was between 6 months and 3 years were treated conservatively. After variable periods of time, the prolapse ceased. Spontaneous remission usually occurred sometime before or during the sixth year of life. Once the condition is outgrown, there is no evidence that it will recur in later childhood or adult life. In one child, in whom the prolapse began at the age of 1 year, the condition became increasingly severe. He underwent a Moschcowitz operation at the age of 11, but the prolapse recurred when he was 13 years old. It was treated surgically again when he was nineteen. The prognosis for children whose symptoms of protrusion first appeared after they were 4 years old was gloomier. In only 1 case was conservative therapy successful. In all the other cases the prolapse persisted. These older children had prolapses which were complete in type. Although surgical treatment was advised for most of the older children, it was performed in only 1 case. Since prolapse of the rectum of 5 of these 40 patients persisted until they were beyond the age of 17 years, it may be estimated that in at least 10 per cent of cases occurring in childhood the prolapse of the rectum will continue into adulthood.

An attempt was made to corroborate the evidence obtained from the children with further study of case records of adult patients who had rectal prolapse. One hundred consecutive patients were selected who, at the time of their first examination were more than 20 years of age, and who had a demonstrable complete prolapse of the rectum. Fifty-one were women and 49 were men. Many of these had suffered from prolapse for many years before examination or treatment. Few could give the exact age at which relapse was first noticed, but several thought that the trouble began around the age of 4 years.

32. Tumors

A Case of Transplacental Metastasis of Malignant Melanoma from Mother to Foetus. *Sir Eardley Holland, London, England.* J. Obst. & Gynaec. Brit. Emp. 56: 529–36, Aug. 1949.

A woman of 25 had a small melanotic tumor removed from the skin of her thigh. This quickly recurred and at a second operation a block excision was made of a large area of skin with inguinal glands. She married the same year and pregnancy followed. About mid-pregnancy subcutaneous nodules began to appear in various places. When hospitalized about a week before term she was very ill, emaciated and drowsy; pigmented nodules were scattered irregularly all over the body and there was proptosis of the left eye. An apparently healthy baby of 6½ pounds was delivered by cesarean section. The massive dark brown placenta filled the lower uterine segment and dark nodules of

growth were scattered throughout the mother's peritoneal cavity. The mother died 3 months later.

The infant improved for 6 or 7 months and then became ill and died when 10 months old. The infant's liver at autopsy was found enlarged by nodules of melanotic growth. The original tumor, the placental masses and the nodules in the infant's liver all had the same appearance. A group of melanotic cells was found in the lumen of a small vein within a placental villus. 8 references. 5 figures.

Benign Mediastinal Teratoma (*Teratoma benignum mediastinale*). *D. Vervat, Rotterdam, the Netherlands. Maandschr. v. kindergeneesk.* 17: 116–118, 1949.

A baby 8-months-old who had repeatedly suffered from infections of the respiratory tract was hospitalized for slight dyspnea, with jugular and intercostal retractions. The left part of the breast at percussion was more dull and showed a greater bulging than the right part. The breath sounds had here disappeared and the heart was displaced to the right. The roentgenogram showed a marked shift of heart and mediastinum towards the right side and a large shadow with a convex lower border. This shadow grew rapidly. At a diagnostic puncture some mucus with glial tissue was aspirated. At operation the diagnosis of teratoma was confirmed. A smooth cystic tumor in the mediastinum was fixed to the left lobe of the thymus and could be removed easily. The extirpated teratoma contained bronchial mucous membrane, cartilage, glial tissue, retinal tissue, fatty tissue and skin. After the operation the left lung expanded in a satisfactory way and the heart returned to its usual position. 4 figures.—*Ph. Arons.*

The Pediatric Bookshelf

Haemoglobin. A Symposium based on a Conference held at Cambridge in June 1948 in memory of Sir Joseph Barcroft. *F. J. W. Roughton and J. C. Kendrew.* Interscience Publishers Inc., New York, 1949. 317 pp. Illus. $8.50.

The amount of available information with respect to the biochemistry of hemoglobin is tremendous. The papers which comprise this symposium permit the general reader as well as the expert to be brought up to date with respect to much of current knowledge of this protein. There are several good chapters on the differences between fetal and adult hemoglobin.

Clinical Diagnosis by Laboratory Examinations. Second Edition. *J. A. Kolmer, Professor of Medicine in the School of Medicine and the School of Dentistry of Temple University, Philadelphia, Pa.* 1949, Appleton-Century-Crofts, Inc., $12.00.

This second edition of Kolmer's well known reference book has expanded to take in discussions of the diagnostic value of many new determinations. Of these, the ones most likely to interest the pediatric reader are rickettsial agglutination tests; rickettsialpox; complement fixation and skin tests in mumps, and histoplasmosis and primary atypical pneumonia and the cold agglutination test. A section on methods for the simpler and more common tests is included at the end. The normal data given are referable primarily for adults, but in general are applicable to older children and often to infants.

The Child From Five to Ten. *Arnold Gesell and Frances L. Ilg.* Harper & Brothers, New York, N. Y.

The first five years of childhood are surveyed in this book in a clear-cut manner, demonstrating the remarkably patterned and lawful way life unfolds during these years. The years from five to ten do not follow this developmental pattern as closely on the surface. But careful evaluation of the underlying trends in growth reveal a pattern of development similar to that observed during the first five years of life. Knowledge of this developmental progress has been gained by a study of dynamic morphology of behavior, requiring intimate conservative individual contacts rather than mass studies. The work is devoted to the newer concepts of the growth patterns for each age period and an interpretation of the growth complex emerging from motor characteristics, hygiene, emotional expression, fears and dreams, self and sex, interpersonal relations, play and pastimes, school life, ethical concepts and philosophic outlook.

Diagnostic Tests for Infants and Children. *H. Behrendt.* Interscience Publishers, Inc., New York, 1949.

Diagnostic tests have evolved through a process of standardization of methods used in clinical research for which, as Hoagland states, "the resources of practically every field of science have been tapped." If one tries to classify the tests described in this book, he will discover that all the tests could be called function tests. They are either true function tests (for example, tolerance tests, which reveal the response of organs or systems to measured demands upon their working capacity) or they give only indirect evidence of the functional status, disclosing the sequels of aberrant processes in the tissues (thus, the changes in the constituents of blood and urine may provide clues to the nature

and the site of existing dysfunction). Each test method or group of methods is followed by an interpretive section. Results considered normal in children of various age groups and a discussion of the test's differential diagnostic significance are included in the interpretation. It would be possible for the reader to form a useful compilation of biologic data about the child by combining the sections appearing throughout the book that define the "norm" of chemical constituents, physical measurements, and functional responses. This is an excellent source book of valuable methods indispensable in accurate diagnosis.

The 1949 Year Book of Pediatrics. *Henry G. Poucher.* Chicago, The Year Book Publishers 1949.

The introduction of greater editorial comment has been extended in this year's edition and many sections are preceded by a concise review of significant trends during the past year. Since it is not possible to abstract a major portion of current contributions to pediatric literature, the author attempts to select recent developments in theory and practice and place them in their proper perspective. Occasionally editorial comment will call attention to trends before their appearance in the literature to direct the future reading of the physician. Attempt is made to assess the ultimate importance of some newer developments and to recommend additional references that will enable the reader to acquire sufficient background to judge the importance of the subject for himself.

Announcements

The Council on Dental Therapeutics of the American Dental Associations at its meeting in February 1950 concluded that ammoniated dentifrices and other dentifrices containing fluorides or chlorophyll preparations be considered as products for which the evidence is limited or inconclusive, and that such products are in need of further study by qualified investigators.

FELLOWSHIP ANNOUNCEMENT

The American Association of Psychiatric Clinics for Children announces the availability of specialized training in child guidance clinic psychiatry, in a number of its member clinics approved as training centers by the Association. This training begins at a third-year postgraduate level, with minimum pre-requisites of graduation from medical school, a general or rotating internship, and a two-year residency in psychiatry—all approved.

This training is in preparation for specialization in child psychiatry, and especially for positions in community clinics devoted wholly or in part to the out-patient treatment of children with psychiatric problems. At the completion of training, attractive openings are available in all parts of the country. Fellows receive instruction and supervision in diagnostic and therapeutic technics with children, in the utilization of the integrated services of the psychiatric clinic team, and in the cordination of clinic effort with the work of health, welfare and educational agencies in the community.

Most of the clinics plan for a two-year training period, although a few still accept one-year fellows, and a few others will consider giving one-year training in special cases. Fellowship stipends are usually $3000 for the first year of training and $3600 for the second year, but may be more or less in certain instances, depending upon the status of the fellows and upon the practices of the individual training center.

The office of the American Association of Psychiatric Clinics for Children gives information and assistance to applicants seeking this training. In practically all instances the work at these clinics has been credited by the American Board of Psychiatry and Neurology for a third year of training and for an additional year of experience. For further information and for application forms, write to:

Dr. A. Z. Barhash, Executive Assistant
American Association of Psychiatric Clinics for Children
1790 Broadway (Room 916)
New York 19, N. Y.

Influence of Solubility on the Practical Value of Calcium Compounds in Clinical Use

The value of calcium therapy, not only in calcium-deficiency states but also to prevent negative calcium balance during periods of increase need, e.g. pregnancy, lactation and period of rapid growth, is now universally recognized. For instance, *Sherman, H. C. (Handbook of Nutrition, Chicago, A.M.A., 1943)* states that calcium is the element most likely to be deficient in the American diet; further, Jeans, P. C. *(ibid)* believes moderate calcium deficiency is widely prevalent in childhood and usually aggravated during adolescence.

The "when" and "why" of calcium therapy, therefore, are clear and the question of greatest concern becomes: *What is the best source of this mineral element?* Milk is an excellent source but is not always practical; many patients cannot or will not take adequate milk. Moreover, dietary elements such as fats and vegetable oxalates interfere with calcium absorption from foodstuffs.

Therapeutic Calcium Compounds: To be suitable for oral use a calcium compound must be both well-tolerated and sufficiently soluble. According to Cantarow, A. *(Calcium Metabolism and Calcium Therapy, Phila., Lea and Febiger, 1933)* the extent of absorption of a calcium salt depends upon its degree of solubility.

Clinical experience has shown that calcium gluconate is well-tolerated, however its low solubility (only 3.3%) greatly limits its value. Recently a derivative, calcium glucono-galacto-gluconate, almost nine times as soluble (27.5%) was developed; this makes possible a preparation (called Syrup Neo-Calglucon) having a high calcium content completely dissolved in a limited volume.

Syrup Neo-Calglucon provides *high calcium content in a readily absorbable form,* excellent gastric toleration and invitingly pleasant taste (moderately sweet and orange flavored).*

Average Supplementary Dosage: One to two teaspoonfuls 2 hrs. after each meal. When the patient has a relatively calcium-poor diet the dosage should be increased, according to the need.

*One teaspoonful contains an amount of Neo-Calglucon equivalent in calcium content to 20 grs. of ordinary calcium gluconate.

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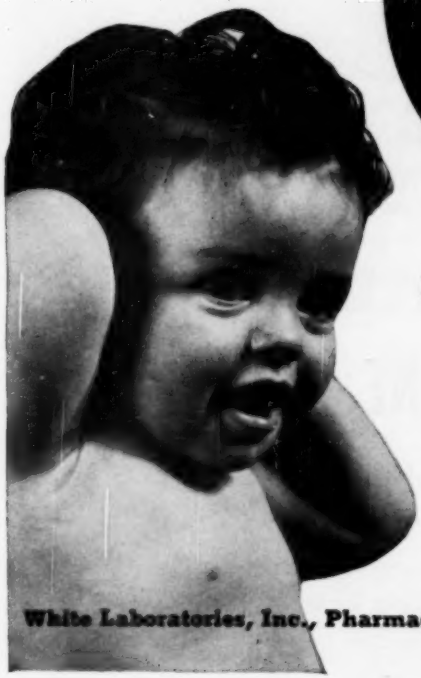

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Thiamine Hydrochloride	1.0 milligram
Riboflavin	0.4 milligram
Pyridoxine Hydrochloride	1.0 milligram
Sodium Pantothenate	2.0 milligrams
Nicotinamide	10.0 milligrams
Ascorbic Acid	50.0 milligrams

Bottles of 10 cc. and 30 cc.
(with calibrated droppers).

White Laboratories, Inc., Pharmaceutical Manufacturers, Newark 7, N. J.


ALWAYS CONSTANT
DOSE AFTER DOSE AFTER DOSE
Accuracy of dosage . . . renal safety . . . no fear of separation or precipitation of sulfonamide on standing . . . no danger of renal impairment when you prescribe GLUCO-SULFADIAZINE. The highly stable, evenly dispersed sodium lactate-glucose suspension *is buffered*—your guarantee that dosage will always be accurate . . . safety always constant. ALWAYS SPECIFY
For complete information on Donley-Evans products see page 434 of your 1950 PDR.
Samples and Literature on Request.
Gluco-SULFADIAZINE
A Buffered Liquid Sulfonamide
DONLEY-EVANS & COMPANY ST. LOUIS 15, MISSOURI

Natural vitamins A and D . . . daily, for about a penny: In "drop-dosage" for infants or pleasantly-flavored Tablets for the older child. Vitamin D wholly derived from cod liver oil, vitamin A adjusted and standardized with fish liver oils. White Laboratories, Inc.

White's Cod Liver Oil Concentrate · LIQUID · TABLETS

No . . . it won't taste gritty to his tongue . . .

Mothers appreciate the smoothness of texture and uniform consistency of Libby's Baby Foods. Infants are quick to detect large particles and to spit them out . . . with Libby's this never occurs. Through Libby's exclusive process of homogenization, cellulose capsules are ruptured, and cell envelopes are reduced to microscopic dimensions. Nutrients are homogeneously dispersed throughout the food mass, making for greater and easier availability. Grittiness is impossible with this process. In consequence, Libby's have been fed as early as the 6th week of life, since they flow freely through normal nipple openings when mixed with the milk formula.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

Beets • Carrots • Green Beans • Peas • Spinach • Squash • Vegetable Soup • Mixed Vegetables • Garden Vegetables • Liver Soup • Vegetables with Bacon • Vegetables with Beef and Barley • Vegetables with Lamb • Apples and Apricots • Apples and Prunes • Apple Sauce • Apricot-Farina • Peaches • Peaches-Pears-Apricots • Pears and Pineapple • Prunes (with Pineapple Juice and Lemon Juice) • Custard Pudding

Libby, McNeill & Libby • Chicago 9, Illinois

Another Pet Milk Success Story ...Written by a Doctor

The Collins Quadruplets are celebrating their first birthday. A wise physician approved Pet Evaporated Milk for them from birth, and like so many other babies on Pet Milk, they're growing strong and sturdy.

The Collins Quads of New York City, Born May 4, 1949

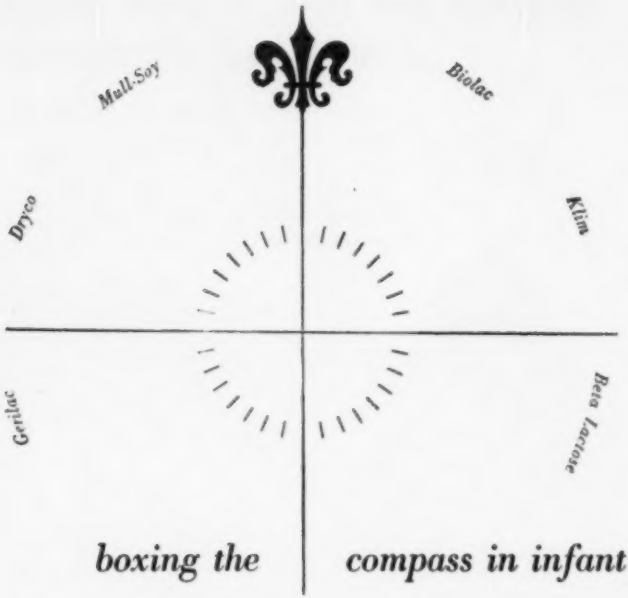
Favored for Infant Formula

So often, of course, Pet Milk is associated with multiple-birth cases. Six sets of quadruplets born in the United States since 1936 and hundreds of sets of triplets have been raised on Pet Milk! Doctors' records of success with these difficult feeding cases are striking evidence of the suitability and safety of Pet Milk for infants everywhere!

There's this to remember, too! Most of these babies continue to drink Pet Milk far beyond bottle-feeding days . . . on through their growing years!

And why not? Pet Milk *is* milk! The same qualities that are so valuable in infant feeding recommend it also as good milk to drink . . . its unfailing sterility, its easy digestibility, its high nutritive value, its economy! So for safe, simple infant formula and as a nutritious, low-cost milk-to-drink, suggest Pet Milk for the babies and children in your care!

PET MILK COMPANY, 1422-E Arcade Building, St. Louis 1, Missouri



boxing the compass in infant nutrition

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BIOLAC, Borden's improved, evaporated-type liquid modified milk, provides for all the known nutritional needs of early infancy except vitamin C.

DRYCO, a high-protein, low-fat powdered milk, serves as a valuable food in itself and as a versatile base assuring ample protein intake plus vitamins A and D. MULL-SOY is the answer to milk allergies—an emulsified hypo-allergenic soy food approximating milk. GERILAC, a spray-dried whole milk and skim milk powder, supplies elderly patients with high quality protein, calcium and iron, and also vitamins A, D, B and C. BETA LACTOSE promotes normal intestinal flora and acidity when used as a carbohydrate modifier. KLIM is powdered pasteurized whole milk, spray-dried for rapid solubility, convenient in hot climates and during travel.

These Borden products conform to the requirements of the Council on Foods and Nutrition and the Advertising Committee of the American Medical Association and are available only in pharmacies. We welcome inquiries from physicians. Write for professional literature and attractive practical Recipe Books.

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